The Economist

HOLIDAY DOUBLE ISSUE
DECEMBER 24TH 2022 – JANUARY 6TH 2023

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TOWARDS A DREAM



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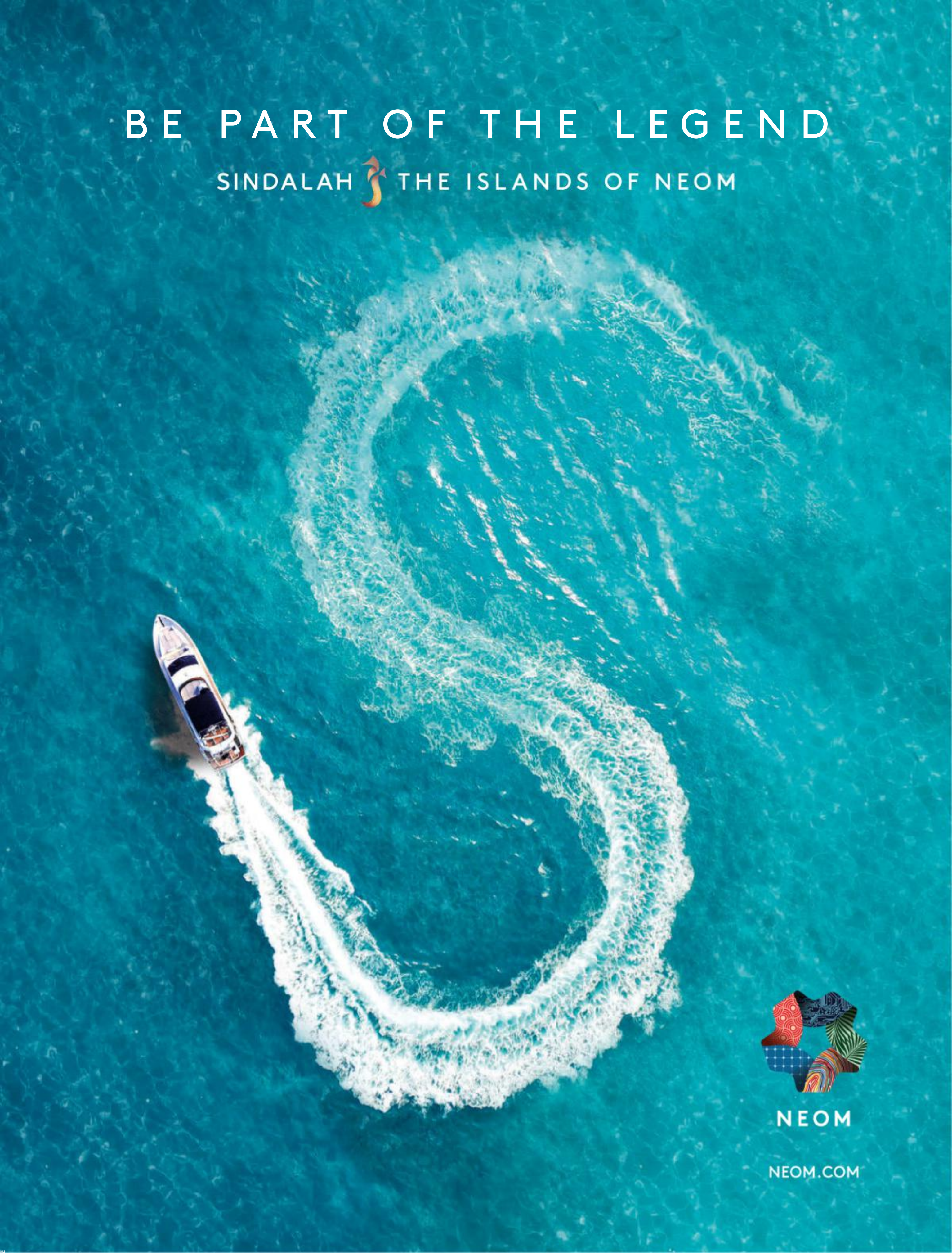
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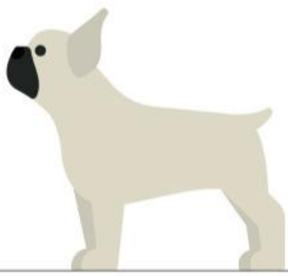
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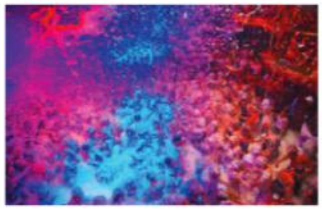
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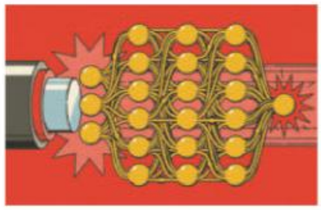


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to take part in *"a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."*

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Russia invaded Ukraine. Vladimir Putin's excuse for this unprovoked act of aggression was that he wanted to "de-Nazify" the country, a democracy with a Jewish president, Volodymyr Zelensky. The invasion, which Mr Putin thought would end in a quick and easy victory, proved spectacularly incompetent.

Russia failed to take **Kyiv**, the Ukrainian capital. Its vehicles and kit broke down. Ukrainians fought hard, picking off Russian fuel and ammunition supplies and pushing the invaders back. America and Europe supplied Ukraine with weapons, cash and intelligence. Russia shelled civilians, tortured captives, kidnapped children and made thinly veiled threats to use nuclear weapons.

In the bleak midwinter

Some 7.8m **refugees** fled from Ukraine; another 7m were internally displaced. America estimated that 100,000 troops on each side had died or been injured in the war and 40,000 civilians had been killed.

As the year ended, Ukrainians had **recaptured** much of the territory Russia had stolen. But Mr Putin **drafted** hundreds of thousands more troops and bombed Ukrainian electricity infrastructure, hoping to freeze civilians over the winter. Ukrainian generals predicted that Russia would launch a big new offensive in early 2023.

Hundreds of thousands of young men left Russia to avoid the draft. Even as a **mercenary group** led by a pal of Mr Putin scours Russian prisons for new recruits to send to the front, Russians are still banned from calling the war a war.

The West imposed **sanctions**, barring Russia's banks from SWIFT, a global payments system, freezing many of its foreign assets and banning the sale to it of high-tech components. Hundreds of companies pulled out of Russia, including Apple, BP, Ford and Shell. Russian planes were banned from Western airports. Some wealthy Russians faced sanctions, too. Roman Abramovich gave up his ownership of Chelsea football club.

The war caused **energy prices** to soar. Oil rose to nearly $140 a barrel before falling again. Mr Putin cut off most gas supplies to Europe, where governments scrambled to secure new supplies and subsidise household heating bills. Investment in alternative energy rose.

The prices of wheat, cooking oil and other essential **foods** rocketed as the war disrupted exports from Ukraine and Russia. The high cost of fuel and food helped spark civil unrest in over 90 countries.

Germany unveiled a new foreign policy, called the *Zeitenwende* (turning point). Chancellor Olaf Scholz vowed to raise defence spending and end the country's long dependence on Russian energy.

Finland and **Sweden** applied to join NATO to protect themselves against Russia. This was awkward for Mr Putin, whose excuses for invading Ukraine included a desire to halt the alliance's eastward expansion. If both countries join, Russia's border with NATO will have doubled. However, Turkey is holding up the applications.

And a partridge in a pear tree

For **Britain** it was the year of two monarchs, three prime ministers and four chancellors. Boris Johnson resigned, eventually, after becoming the first prime minister to receive a criminal fine (for breaking lockdown rules). "Them's the breaks," he said. Liz Truss's tumultuous seven weeks in Number 10 saw the pound fall to a four-decade low against the dollar, government-bond yields soar and the IMF rebuke her government for its unfunded budget. "The markets will react as they will," said her chancellor, Kwasi Kwarteng, and they did. Rishi Sunak restored some calm when he took over from Ms Truss.



Queen Elizabeth II died, aged 96, after 70 years on the British throne. Some 250,000 people filed past her coffin as she lay in state. King Charles III, who has promised to follow his mother's tight-lipped approach to reigning, will be crowned on May 6th.

'Tis the season to be jolly

The **covid-19** virus became less dangerous as more people were vaccinated. Most countries loosened their restrictions, though not in time to allow the unjabbed Novak Djokovic to play in the Australian Open. A truckers' protest in **Canada** against covid mandates morphed into a movement against the government, which enforced the Emergencies Act for the first time.

Xi Jinping secured a third term as **China's** leader. His "zero-covid" policy was all but abandoned after protests against harsh lockdowns, the biggest since he came to power in 2012. Covid started to spread rapidly in China. Experts fretted that the government has failed to vaccinate old people properly. China continued to avoid the use of highly effective foreign-made vaccines.

Inflation soared to double digits in America, Britain and the euro area, prompting **central banks** to tighten monetary policy sharply. In March the Federal Reserve increased its main rate for the first time since 2018. In November the Bank of England raised its rate by the biggest amount since the 1980s. The European Central Bank lifted its from a negative -0.5% to zero, and then higher.

President **Joe Biden** signed a huge package of subsidies to promote clean energy and tackle climate change, the misleadingly named Inflation Reduction Act. America's Supreme Court overturned *Roe v Wade*, passing control of **abortion** policy back to the states. Some 13 states banned most abortions. The Democrats held on to the Senate in midterm elections, defying expectations, and only narrowly lost the House. Candidates in tight races endorsed by **Donald Trump** did especially badly. At the end of the year the House committee investigating the assault on the Capitol in 2021 recommended that Mr Trump face charges of insurrection.



The death in custody of Mahsa Amini sparked huge protests in **Iran**. Amini had been arrested by the morality police for wearing her hijab improperly, and died after being beaten. Protesters railed against the theocracy for weeks. Women burned their hijabs in public. Around 15,000 people were arrested; some were executed.

In **Sri Lanka** the spike in food prices came on top of a slump in food production caused by

a ban on chemical fertilisers. The Rajapaksa brothers were blamed. Mahinda Rajapaksa resigned as prime minister amid the worst economic crisis since independence. Gotabaya Rajapaksa fled the country when a mob stormed his presidential palace.

Joyful and triumphant

Italy elected a hard-right coalition led by Giorgia Meloni of the Brothers of Italy. Ms Meloni became the country's first female prime minister. After yet another election in **Israel** Binyamin Netanyahu was set to become prime minister again, a year after he left office in disgrace. **South Korea** got a new president: Yoon Suk-yeol. Emmanuel Macron was re-elected in **France**. In **Australia** the Liberals were turfed out after nine years in charge. Ferdinand "Bongbong" Marcos, the son of a dictator, won the **Philippines'** presidential election. **Colombia** got its first-ever president from the left: Gustavo Petro, a former guerrilla fighter. William Ruto won **Kenya's** presidential election. The opposition challenged the result, though there was no repeat of the widespread killings that marred previous ballots. After years seeking the job, and time in prison, Anwar Ibrahim became **Malaysia's** prime minister.

Jair Bolsonaro lost **Brazil's** presidential election, but did not admit it. Without evidence, his party claimed the vote was rigged. The electoral authority dismissed the challenge and fined the party for wasting its time. Luiz Inácio Lula da Silva will be sworn in on January 1st. He vows to halt the destruction of the Amazon rainforest, which accelerated under Mr Bolsonaro.

Imran Khan was ousted as prime minister of **Pakistan** following a vote of no confidence in parliament. He did not go quietly. Six months later his party won most of the seats in a series of by-elections. A few weeks after that Mr Khan was shot in the leg at a rally.

God rest ye merry gentleman



Elon Musk, the founder of Tesla and SpaceX, bought **Twitter**. He sacked the CEO, the entire board and half the staff. Mr Musk said he would allow more free speech, but balked when offensive tweets proliferated and upset advertisers. In December he asked his Twitter followers if he should stay as CEO; they said no. Mr Musk ceased to be the world's richest man; Bernard Arnault, the boss of LVMH, a luxury firm, surpassed him.

Stockmarkets were battered during 2022. The shine came off **big tech** stocks. The share prices of Meta and Tesla fell by over 60%. Apple briefly reached a stockmarket value of $3trn in January; it is now worth about $2.1trn. The S&P 500 had its worst first half since 1970. **Cryptocurrencies** were also hammered, especially after the collapse of FTX, one of the biggest crypto exchanges, whose boss was arrested on suspicion of massive fraud. Bitcoin is down by 65%.

America limited exports to China of **chips made with American technology** and banned outright chips for use in the development of Chinese artificial intelligence. China took the dispute to the WTO.

The worst drought on record in the **Horn of Africa** pushed more than 80m people into hunger. Millions are on the brink of famine.

Ethiopia and the rebellious leaders of the northern region of Tigray agreed to end a civil war. Hundreds of thousands of civilians are thought to have died because of the conflict, mostly from hunger or disease.

Business and daily life in **South Africa** were constantly disrupted by power cuts. Eskom, the state electricity monopoly, has been so hollowed out by corruption that half of its generation capacity is regularly offline.

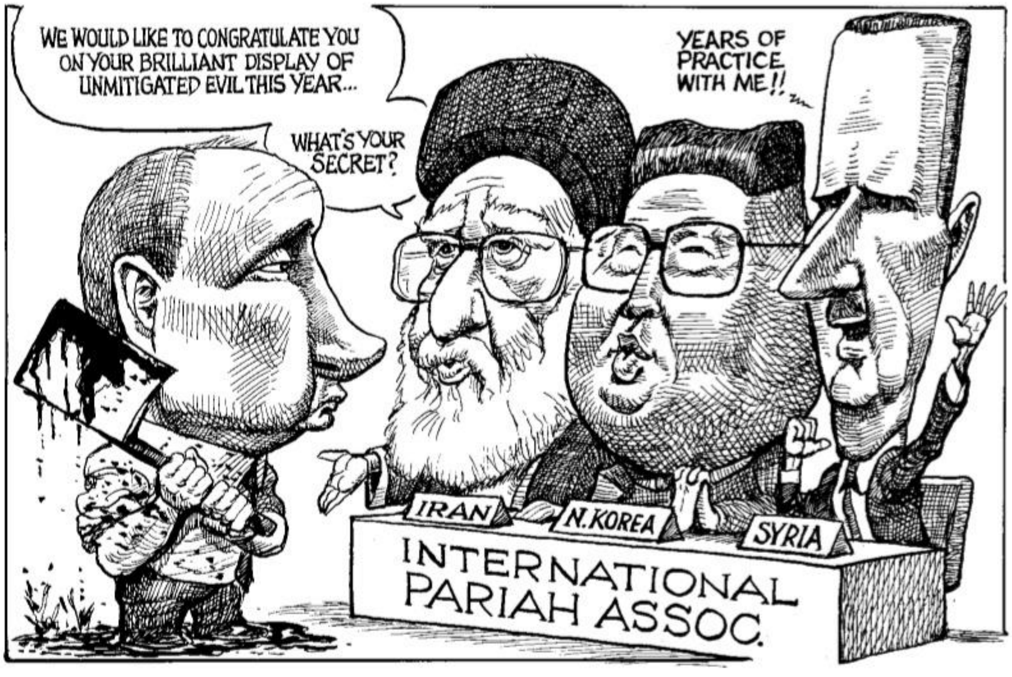
Abe Shinzo, a former prime minister of Japan, was assassinated. **Salman Rushdie**, a writer, was stabbed by a jihadist but survived. In 1989 Iran's late ruler, Ayatollah Khomeini, had ordered Muslims to kill Mr Rushdie for writing "The Satanic Verses", a novel.

The **world's population** passed 8bn, just 12 years after it reached 7bn. Improvements in nutrition and medicine have increased humans' lifespan.

Ding-dong merrily on high



The **Oscars** ceremony was full of surprises. "Coda" became the first film released primarily over streaming to win best picture. Will Smith, an actor, slapped Chris Rock, a comic, for being rude about his wife. **Netflix** reported a dip in subscribers and introduced ads to increase revenue. The biggest box-office hit was "Top Gun: Maverick", proving that a 60-year-old actor in a leather flight jacket and shades can still pull them in.



Why 2022 mattered

Some years bring disorder, others a resolution. This one asked questions

It was a year that put the world to the test. From the invasion of Ukraine to covid-19 in China, from inflation to climate change, from Sino-American tensions to pivotal elections, 2022 asked hard questions. The ordeal has not only sent the world in a new direction, but also shown it in a new light.

The biggest surprise—and the most welcome—has been the resilience of broadly liberal countries in the West. When Vladimir Putin ordered Russian troops into Ukraine on February 24th, he expected the government of a corrupt state to buckle. After a humiliating withdrawal from Afghanistan in 2021, the decadent, divided West would surely fail to match condemnation of Russia with real backing for Ukraine.

In fact Volodymyr Zelensky and his people affirmed that self-determination and liberty are worth dying for. They became an inspiration (see next leader). After an upsurge in popular support, Western governments threw their weight behind democracy's new champion. Led by the Biden administration, the West is providing arms and aid on a scale even hawks had not imagined.

At home voters also made themselves heard, siding against taboo-busting populists. In America, despite the awful approval numbers of Joe Biden, centrists used their ballots to preserve fundamental rights, including in some states the right to an abortion after the Supreme Court overturned *Roe v Wade*. In competitive races hard-core election-deniers endorsed by Donald Trump almost all lost.



In France Marine Le Pen camouflaged her far-right origins, but was still beaten by Emmanuel Macron, a centrist. After Giorgia Meloni became Italy's first far-right post-war prime minister, she leaned to the centre. Even in stumbling Britain, both Labour and the governing Conservatives are calculating that victory in elections lies away from the populist extremes of right and left.

As messy democracies show unexpected resolve, so seemingly steady autocracies have had feet of clay. Mr Putin is the prime example, doubling and redoubling his catastrophic gamble. But he is not the only one. After three months of protests following the death in custody of Mahsa Amini, who had been arrested for failing to follow the rules in wearing her hijab, the security forces in Iran have taken to shooting female protesters in the face, breasts and genitals. Now that the mullahs have forfeited the faith of their people, they have no other lever but violence.

Those who admire strong leaders for getting things done should be careful what they wish for. Xi Jinping has extended the dominance of the Chinese Communist Party, installing himself as its permanent chief and the most powerful leader since Mao Zedong. But his steps to cool the property market, rein back consumer tech and block covid did grave harm to the economy. Today, as the virus spreads, it is clear that his government wasted months when it should have been vaccinating the elderly, stockpiling drugs and creating intensive-care beds.

Even China's all-encompassing social control showed cracks. Although the Chinese security services swatted down widespread protests last month, these had been triggered partly by the sight of maskless crowds in Qatar enjoying the World Cup.

For all those who embrace classical liberal values, including this newspaper, Western resilience is heartening—and an important change after a long retreat. But the good news goes only so far. The tests of 2022 have also revealed the depths of the world's divisions and have set big government on the march.

To gauge the divisions, compare the almost universal support for America after the attacks of September 11th 2001 with the global south's determination to stay neutral in the fight over Ukraine. In the most recent UN vote to reprimand Russia, 35 countries abstained. Many understandably resent how the West asserts that its worries are issues of global principle, whereas war in Yemen or the Horn of Africa, say, or climate-related droughts and floods, always seem to be regional.

In much of the world liberal values are embattled. Despite the defeat of Jair Bolsonaro in Brazil, democracy is under strain in Latin America. As he presides over ruinous inflation in Turkey, Recep Tayyip Erdogan is prosecuting potential opponents in the election in 2023. In Israel Binyamin Netanyahu is trying to avoid jail for corruption by forming a coalition with the Arab-hating, gay-bashing far right. Indonesia adopted an illiberal criminal code in December that threatens to ban sex outside marriage, stifle free speech and impose religious orthodoxy. India's economy is brimming over with tech-inspired enterprise, but its politics are majoritarian, ugly and cruel.

All around the world, the idea of limited government is taking a beating. Because of the post-invasion energy shock, European governments are pouring money into fixing prices. They are also powering the transition from fossil fuels, itself a welcome goal, using industrial policy rather than markets. America's answer to the security threat from China is to deploy trade barriers and subsidies to decouple its own economy and boost home-grown industries. If that harms America's allies, too bad.

Economic nationalism is popular. The largesse during the pandemic changed expectations of the state. Creative destruction, which reallocates capital and labour, may be unpalatable to ageing populations that put less store by economic growth and to younger voters who embrace the politics of identity.

But big-government capitalism has a poor record. Given decades-high inflation, caused partly by ill-judged fiscal and monetary policy, especially in America, it is odd that voters want to reward politicians and officials by giving them power over bits of the economy they are not suited to run. State-backed champions in energy and tech sometimes succeed, but the more that countries pile in, the more waste and rent-seeking there will be.

The chips were down

Judged by the liberal yardstick of limited government, a respect for individual dignity and a faith in human progress, 2022 has been mixed. However, there is hope. The West was arrogant after the collapse of Soviet communism. It paid the price in Iraq, Afghanistan and the global financial crisis of 2007-09. In 2022, having been rocked by populism at home and China's extraordinary rise, the West was challenged and it found its footing. ■

Country of the year

It has to be Ukraine

For the heroism of its people, and for standing up to a bully

IN NORMAL TIMES, picking *The Economist*'s country of the year is hard. Our writers and editors usually begin with a free-wheeling debate in which they spar over the rival claims of half a dozen shortlisted nations. But this year, for the first time since we started naming countries of the year in 2013, the choice is obvious. It can only be Ukraine.

The honour normally goes to the country which, in our view, has improved the most in the previous 12 months. So Ukraine is in one sense an unusual choice, in that life for most Ukrainians has grown spectacularly worse since Vladimir Putin's unprovoked invasion of their country in February. Multitudes have died. Cities have been smashed and charred. Millions have fled their homes. Ukraine's economy has shrunk by about a third. Because of Russian attacks, many Ukrainians are shivering in the dark without electricity.



Yet Ukrainians have proved themselves this year. Four of their qualities stand out. The first is **heroism**. When the invasion began, most people thought Ukraine would be crushed by its much larger neighbour. Many would have understood if Ukraine's defenders had run away. Mr Putin clearly expected the Ukrainian army to fold: his troops arrived with their dress uniforms ready for a victory parade but without nearly enough food.

The Ukrainians stood and fought. President Volodymyr Zelensky, spurning Western offers to spirit him out of Kyiv, supposedly snapped that he needed "ammunition, not a ride". Ordinary Ukrainians showed similar mettle. Professors, plumbers and pop stars flocked to enlist, swapping comfortable beds for frosty foxholes and the risk of agonising death. In battle after battle they routed the Russians. In defending themselves against an aggressor who disputed their country's right to exist as an independent state, they found a new sense of nationhood.

They showed **ingenuity**, too. They spotted their enemies' weaknesses, blew up their fuel and ammunition supplies, and quickly learned how to use new Western-supplied weapons. They devolved decision-making to officers in the field, making their units more nimble and adaptable than the plodding, hierarchical Russians. They made deft use of help from friendly intelligence services, especially America's, while their enemies fought half-blind, and sometimes gave away their own positions by making phone calls on open lines.

Ukrainians have also demonstrated **resilience**. When there is no tap water at home, they melt snow. When there is no electricity, they find heat and light in cafés with diesel generators, or sleep in the offices where they work, many of which now have bomb shelters and bottled water. The horrors Mr Putin keeps inflicting on them do not seem to have dented their morale.

And with a few exceptions, they have not answered war crimes with war crimes. Russian forces have routinely bombed civilians, tortured captives and plundered villages. By contrast, Russian prisoners-of-war are startled at how well they are treated. This is largely because Ukraine is not, as Mr Putin claims, a Nazi state, but a democracy where human lives matter. It has its flaws, notably corruption, but its government and people had rejected Putinism even before the war, and now they reject it more strenuously.

By standing up to Russia's despot, Ukrainians have protected their neighbours. Had he conquered Ukraine, he might have attacked Moldova or Georgia next, or menaced the Baltic states. Ukraine has shown that underdogs can stand up to bullies, even enormous ones (see Back Story). It has thus been an **inspiration** not only to places with predatory neighbours, such as Taiwan, but also to oppressed people everywhere. Many tyrants broadcast big lies to justify their misdeeds, and impose their will through terror. Ukrainians have shown that lies can be exposed and terror can be resisted. Their struggle is far from over. But their example in 2022 was second to none. *Slava Ukraini!* ■

Social media

A $44bn education

What running Twitter has taught Elon Musk about free speech

ELON MUSK's two months running Twitter has been an unhappy experiment. The social network's 250m users have endured a wearying saga in which Mr Musk is the central character. Advertisers have fled. Twitter, which lost $221m in 2021, is now on track to lose $4bn a year, by one estimate. The damage has spread to Tesla, Mr Musk's carmaker, part of the reason it has lost half a trillion dollars in market value since early September, costing Mr Musk the title of the world's richest man.

On December 19th it looked as if Mr Musk might throw in the towel, after Twitter users voted for him to step down as chief executive. It has been a costly adventure. But in one sense his turbulent stewardship of the social network has done the rest of the world a favour. In two short months Mr Musk has been through a public crash course in the principles of free speech, neatly demonstrating the trade-offs involved in protecting expression online.

From the outside, Twitter seemed simple to someone whose day job was building self-driving cars and space rockets. Mr Musk, a self-described "free-speech absolutist", had grown concerned (with some justification) that Twitter had been captured by censorious left-wing scolds. Shortly after agreeing to buy the platform he explained his approach to moderation: "By 'free

speech', I simply mean that which matches the law."

In practice he has found that the right to speech conflicts with other rights (see Lexington). One is safety. Last month Mr Musk said that his commitment to free speech meant he would not ban a Twitter account that tweeted the whereabouts of his private jet, even though he considered this a security risk. But on December 14th he changed his mind after a "stalker" bothered his son. After suspending the jet account, Twitter introduced rules outlawing the reporting of others' real-time locations.

As well as limiting speech in the name of safety, Mr Musk has curtailed it to avoid the lesser sin of causing offence. In October the number of views of tweets that Twitter deems "hate speech" doubled, as users tested the limits of Mr Musk's new regime. Rather than allow this legal-but-nasty content, Twitter cracked down. In November hateful tweets recorded one-third fewer views than before the takeover. Earlier this month Twitter suspended the account of Ye, a rapper formerly known as Kanye West, after he posted a picture of a swastika within a Star of David—an image that, however grotesque, is nonetheless permitted by America's laws.

Mr Musk even limited speech when it was bad for profits. After pranksters sent tweets aping brands like Pepsi ("Coke is better") and Nestlé ("We steal your water and sell it back to you lol"), Twitter outlawed such behaviour to stop advertisers fleeing. Then, to stem an exodus of users, on December 18th Twitter said it would ban people from linking to rival social networks or posting their usernames. When questions were raised as to whether regulators would consider such a move anticompetitive, Mr Musk apologised and free speech was restored.

All this holds two lessons for whoever follows Mr Musk as Twitter's boss, should he leave. One is to keep content moderation at arm's length. The person deciding whether a post is acceptable is compromised if they are also responsible for boosting engagement among users and spending by advertisers. Mark Zuckerberg (whose reputation has risen in light of Mr Musk's pratfalls) realised this and outsourced Facebook's biggest moderation headaches to an independent "oversight board" in 2020.

The second lesson is that moderation has no clean solutions, even for "technokings" with strong views on free speech. Free expression is not a problem with a solution bounded by the laws of physics that can be hacked together if only enough coders pull an all-nighter. It is a dilemma requiring messy trade-offs that leave no one happy. In such a business, humility and transparency count for a lot.

These are novel concepts to some in Silicon Valley, who are impatient to tear up the established ways of doing things. But just as cryptocurrency enthusiasts have recently received a bracing lesson in the value of boring old financial prudence, so Mr Musk and his fellow free-speech enthusiasts are learning why free expression has caused many to scratch their heads over the centuries. Tech valuations have suffered a sharp correction in 2022. It has also been a chastening year for tech egos. ■

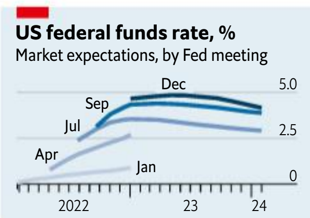
Financial markets

The year of the rate shock

Markets are adjusting to higher interest rates. That does not mean the chaos is over

ONCE MORE for the cheap seats at the back. That way the lesson may sink in. After a strong run from mid-October, stockmarkets have tumbled yet again. The S&P 500, an index of American shares, has shed 5% since December 14th, when the Federal Reserve increased interest rates by half a percentage point and Jerome Powell, its chairman, said that policymakers had no plans to start lowering rates until they were confident that inflation was moving down to 2%. "The historical record cautions strongly against prematurely loosening policy," he declared.

The end of cheap money caused drama in markets in 2022. Investors are hopeful that the chaos will soon be over and that a rate cut might come as soon as mid-2023. However, Mr Powell's warning sounds like an effort to drive home the idea that the optimism is misplaced.



It would not be the first time. Markets have collapsed after most Fed meetings this year, as investors have been shaken by Mr Powell's hawkish tone. In each of the five worst weeks for American stocks in 2022, shares plunged by about 5%. All of them took place immediately before or after a Fed meeting. As inflation, first unleashed by a fiscal stimulus, proved stickier than expected, the increasingly hawkish central bank meted out monster rate rises even as investors kept hoping that it might let up. When the stockmarket peaked in America on January 3rd, bond markets thought that the upper bound of the Fed's policy rate of 0.25% would rise by just 0.75 percentage points by the end of the year. In the event, it stands at 4.5%.

The fierce tightening of monetary policy was the trigger for much of the turbulence that rocked finance in 2022. The collapse in tech share prices was so violent that Meta has twice shed more than a quarter of its value in a single trading day. The rout in bond markets was so extreme that corporate issuance and loan markets seized up in the spring. British pension funds were thrown into turmoil in the autumn by moves in gilt prices, and the collapse in crypto revealed what American authorities are calling a "massive years-long fraud" at FTX, an exchange, perpetrated by Sam Bankman-Fried, a former wunderkind. On December 20th the Bank of Japan roiled markets by modifying its policy of capping long-term interest rates (see Finance & economics section). Each case had its idiosyncrasies, but all were exposed when the era of free money came to an abrupt end.

Will things be calmer in 2023? Interest rates are higher across most of the rich world than they have been for more than 15 years, so much of the rate shock may seem to be safely in the past. Inflation appears to be abating, in America at least. Though many countries in Europe are still struggling with high energy costs, price increases seem to have slowed there, too. Perhaps the adjustment, though painful, is largely done.

Such thinking could well prove mistaken. For a start, a gulf remains between what the Fed says it will do and what investors expect from it. The central bank reckons it may have to raise in-

terest rates above 5% in 2023, and leave them there. That does not tally with investors' expectations. Despite Mr Powell's warnings, they are betting on a shallower peak and continue to think that the first rate cut may come as soon as the summer.

In short, policymakers and investors still differ over the most important questions. How sticky will inflation be? At what level will rates peak? And when will central bankers start to ease off?

Another source of uncertainty is whether America will enter a recession and, if so, when. The Fed reckons that it may be spared, projecting slow growth of 0.4-1% in 2023, and inflation of around 2.9-3.5%. If recession does strike, investors will not be ready. Analysts say that profits could well grow by 7.6% in 2023, well above nominal GDP.

Last, the effects of the rate shock are still working their way through to asset prices. So far, only the quickest and twitchiest asset markets, like stocks, bonds and crypto, have adjusted. Those moves are still being digested by financial institutions. Only in crypto have large firms been in real danger, with some lending platforms, exchanges and hedge funds going bust.

However, the interest-rate shock could yet expose cracks elsewhere in the financial system. And more pain is to come. Prices have yet to adjust in markets that are slower to mark down assets, as in private equity and property.

The Jay walk

The rate shock dominated financial markets in 2022. Little wonder that investors wish an end to it. Yet the big debates about inflation and interest rates remain unresolved; investors' hopes for growth and profits look too rosy; and the effects of rate rises have yet to filter through to all corners of the financial system. Whatever investors choose to believe, the chaos of 2022 could well follow them into the new year. ■

Climate change and biodiversity

The laws of nature

There is a financial case for investing in biodiversity

THE NATURAL world is a source of beauty and wonder, but it also provides humans with essential services. Jungles, savannahs and mangroves act as buffers against infectious diseases and storm surges. Forests channel moisture into rivers that irrigate crops, while their roots prevent landslides. At a gathering on Monday in Montreal, 196 governments from around the world pledged to protect and restore 30% or more of the Earth's water and land by 2030.

Lofty promises about preserving the world's biodiversity have been made and broken many times before. One step towards avoiding yet more disappointment is to emphasise the close link between preserving biodiversity and the widely held goal of reaching net-zero carbon emissions.

The destruction of natural environments is depressing, relentless and hard to ignore. The area of coral reefs has halved since the 1950s and the rate of loss is accelerating. Some 10m hectares of forest are lost worldwide every year. Less known is the link between biodiversity and climate change. Each year more than a quarter of the carbon dioxide emitted by industry and agriculture is absorbed by natural ecosystems.



Around the world, investment in the energy transition is accelerating. Spending in 2022 on clean energy, for example, should reach $1.4trn, roughly a fifth above the pre-pandemic level. Scores of countries and thousands of big companies have plans to get to net-zero emissions within the next 20-30 years. Given that biodiversity has an important role in meeting these carbon-reduction goals, you might think that it would feature highly in these plans.

Not so. For example, Joe Biden's chief piece of climate legislation, the Inflation Reduction Act, contains about $400bn of subsidies for clean energy and other initiatives yet has too little to say about biodiversity. Faced with tighter regulation of emissions and carbon-pricing schemes, many bosses are now dedicating more time and cash to cutting their firms' carbon footprints. But most still regard biodiversity as a nice-to-have luxury that is far beyond their remit.

That needs to change. Safeguarding biodiversity is an efficient way to control carbon emissions. More of the rising amounts of government spending being thrown at mitigating and adapting to climate change should be spent on it.

In addition, companies and investment firms that are allocating huge sums to developing clean-energy sources, re-engineering industrial processes and developing carbon-capture technologies should pay more attention to the opportunities from preserving ecosystems. By investing in biodiversity—directing capital to projects that repair an ecosystem, for example—companies can offset their emissions. By some estimates, schemes to manage carbon-rich peatlands and wetlands and to reforest cleared land could provide more than one-third of the emissions reductions that are needed to prevent more than 2°C of global warming.

Key to marshalling more capital is better measurement, so that the link between investment in natural projects, biodiversity and carbon is made clear. Today some so-called carbon-offset schemes that involve firms paying money to, say, plant a forest, are dubious and opaque—and belong to the realm of con-artists and scams rather than science. Better guidelines and practice can help and so can new technology. Drones and satellites can improve the measurement of biodiversity and accounting systems can measure how spending on biodiversity compares with funnelling cash into other kinds of carbon management.

The services ecology

The planet is in a vicious cycle in which global warming damages ecosystems, in turn impairing their ability to absorb carbon. Over the past 20 years the Amazon has become a net source of carbon dioxide, emitting 13% more than it captures. Spending money on nature need not only be an act of philanthropy. It can also be attractive for governments and firms investing in mitigating climate change. ■

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Officer, Multilateral Organizations Section
Brussels, Belgium

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Needle-exchange policies

Your article on syringe exchanges did not recognise the continuing challenge of HIV and the weight of evidence on harm reduction ("No harm intended", December 3rd). Across the world, 1.5m people were newly infected with HIV last year. Because of stigma, discrimination and criminalisation, people who inject drugs and their sexual partners are 35 times more likely to contract HIV than people who do not inject drugs. Needle and syringe programmes, as part of a comprehensive package of harm-reduction services, are effective in preventing HIV and in connecting people who inject drugs to other life-saving services.

Your article, based on a single new study in a rapidly changing drug-use environment, did not reflect the wealth of research. HIV guidelines for people who use drugs, released by the World Health Organisation this year, reviewed the most recent evidence and made a strong data-informed recommendation for the prioritisation of needle and syringe programmes for drug users.

To end the AIDS pandemic the world needs to move away from failed, punitive, stigmatising approaches towards a human-rights, community-led approach, rooted in decades of experience and evidence.

WINNIE BYANYIMA
Executive director
UNAIDS
Geneva

The distribution of sterile syringes and other life-saving services is not the reason why 556,472 people have died of opioid-related overdoses from 2000 to 2020. Over this period, opioid-related fatal overdoses increased by 716% and synthetic opioid-related fatal overdoses by 5,833%. The real moral hazards were the drug firms' gross production and promotion of legally prescribed opioids without having to bear the cost of the ensuing epidemic, and the production of synthetic opioid-laced illicit drugs with little consideration of the rocketing rates of fatal overdose among users.

To "do no harm" do not stigmatise people with substance use disorders as "junkies" and "addicts". To determine which policies work, do what harm-reduction researchers do: follow the science, the full breadth of it, including studies that use multiple methods and that evaluate a range of harm reduction and overdose-prevention efforts.

BRIAN WEIR
Assistant scientist
PROFESSOR SUSAN SHERMAN
Johns Hopkins Bloomberg School of Public Health
Baltimore

Without fear or frontiers

I got to know Kenya's boda-boda motorbike taxis during a Rotary humanitarian visit to the country ("Brotherhood of bikers", December 3rd). They were driving all over the place, in the city and in the countryside, transporting passengers, chickens and building material. They certainly have a disdain for traffic rules and there are many accidents. The general hospital in Nairobi even has a special ward for boda-boda casualties. Interestingly, boda-boda has come to mean border-to-border, as indeed they criss-cross the country from border to border and also drive over the border into neighbouring countries.

GRETA CLEYNHENS DU BOIS
Kingston, Canada

Swapping ideas in the EU

Charlemagne suggested that the European Union's "one-size-fits-all" policies hold back the spread of good ideas between its members (November 26th). However, when it comes to road safety, the EU shares precisely the kind of smart thinking highlighted in the column. In an EU-funded project called Road Safety Exchange, we have taken Lithuanian policymakers to see the Dutch cycling infrastructure that so impressed your correspondent. Polish experts came with us to look at France's ultra-efficient traffic-fine processing centre, and Portuguese specialists got a hands-on look at how the Irish do roadside drug-driving checks. The "sharing of best practice" may be awful Brussels jargon, but the EU can be genuinely good at it and, in our case, the results can even save lives.

DUDLEY CURTIS
European Transport Safety Council
Brussels

Charlemagne quoted Tom Lehrer's advice to plagiarise: "it's why the good Lord made your eyes". But he should have cited the rest of Mr Lehrer's wisdom on plagiarism: always remember to call it research.

MORAY CLAYTON
Mbabane, Eswatini

A failure to communicate

Your article on the sinking of the *Titanic* ("Back story, November 26th), said that the radio officer of the nearby *SS Californian* was "asleep". According to Parks Stephenson, who has investigated the wreck, before going off duty the officer carried out his captain's instruction to warn ships in the vicinity about ice, but was brusquely told to shut up by the *Titanic*'s radio officer because he was interrupting the transmission of passenger messages. That was an hour before the *Titanic*'s encounter with the fatal iceberg.

Official inquiries established that, although the *Californian* failed to act on seeing flares fired from the *Titanic*, her role had she done so would have been the same as the *RMS Carpathia*, the first ship to pick up passengers from lifeboats. James Cameron's Jack, in the water, would still have died.

SIMON TIMM
London

Street racers

Regarding unusual street names ("Signs of the times", November 26th), some of my favourites are in the village of Silverstone, from which the motor-racing circuit takes its name. Here there is a Stewart Drive, Brabham Close and Graham Hill.

STUART KING
Dumfries

And what do you do?

Bartleby's column on job-title inflation was excellent (December 10th). I remember a meeting I had in the 1990s with executives from a retail chain based in Michigan. The company let its managers make up their own titles. I was handed business cards that read "Queen of the Inventories", "Merchandising Maven" and "Secret Weapon". I recall that this group of managers was a particularly happy one.

SATYEN HOMBALI
Pune, India

When I was an undergraduate one of my roommates took pride in his part-time job: "I focus exclusively on the retail distribution of refined petroleum products."

ANDRE MONCHEUR DE RIEUDOTTE
Boise, Idaho

You might be amused by this snippet from "Full Moon" by P.G. Wodehouse: "Is there anything higher than a vice-president? 'Well, as a matter of fact,' Freddie confessed, in a burst of candour, 'in most of these American concerns …vice-president is about where you start. I fancy my guerdon ought to be something more on the lines of assistant sales manager.'"

DAVID LINDSAY
London

As any fan of the American version of "The Office" would tell you, there is a world of difference between "assistant to the regional manager" and "assistant regional manager".

NAREG SEFERIAN
Arlington, Virginia

Letters are welcome and should be addressed to the Editor at
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More letters are available at:
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Mental health

Care or confinement

LOS ANGELES AND NEW YORK

Is forced treatment for mentally ill people ever humane?

In America's big cities, a walk down the street or a wait for the subway can be an exercise in avoidance. Scores of commuters in Los Angeles, New York and elsewhere don metaphorical blinders every day in order to ignore those sleeping fitfully on the train or battling psychosis on the street. Such indifference is morally fraught, but it is also a reflection of how common homelessness and public displays of mental illness have become.

Most Americans who experience homelessness do so briefly. They stay with family or crash on a friend's couch until they can afford rent. (The lack of affordable housing is the biggest driver of homelessness.) The Department of Housing and Urban Development's latest count of homeless people, tallied on a single night in January, found that 22% of them are "chronically homeless", and that there were 16% more perennially homeless adults in 2022 than in 2020. Many live in tents beneath highways or in public parks. They are more likely to be suffering from drug addiction and mental illness, both of which can be made worse by living on the streets. The number of people sleeping outside has increased by roughly 3% since 2020, cancelling out the modest decline of people in shelters. As the ranks of unsheltered people have grown, an old question re-emerges: how should government help people who may not be able to help themselves?

The places most troubled by this, New York City and California, are trying to find an answer. Both have enacted policies aimed at people who are homeless and suffering from a psychotic disorder, such as schizophrenia. Yet they differ in important ways. Last month Eric Adams, the Democratic mayor of New York City, instructed police and first responders to hospitalise people with severe mental illness who are incapable of looking after themselves. Mr Adams's plan is a reinterpretation of existing rules. Law-enforcement and outreach workers can already remove people from public places if they present a danger to themselves or others. But now, the mayor stressed, people can be hospitalised if they seem merely unable to care for themselves. "It is not acceptable for us to see someone who clearly needs help and walk past them," Mr Adams proclaimed.

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21 Disorder on the border
22 Lexington: Free listening

The mayor's plan follows a policy change on the opposite coast. At the urging of Gavin Newsom, California's Democratic governor, the state legislature passed the Community Assistance, Recovery, and Empowerment (CARE) Act in September , creating a new civil-court system aimed at directing the mentally ill and homeless to treatment and housing. Patients can be referred to CARE court by police, outreach workers, doctors or family members, among others.

Acceptance into the system means court-ordered treatment for up to two years, after which patients can "graduate" or, potentially, be subjected to more restrictive care, such as a conservatorship. California has been quick to try to distance CARE court from New York's apparently more punitive response. "It's a little bit like apples and giraffes," says Jason Elliott, Mr Newsom's deputy chief of staff. "We're both trying to solve the same problem, but with very different tools at our disposal, and also really different realities." ▸▸

The biggest difference between the two policies is their size. Because New York City recognises a right to shelter, the vast majority of the roughly 68,000 homeless people there have a roof over their heads. Experts reckon that Mr Adams's order may at first affect only those few hundred people in the most dire straits. The California Policy Lab at the University of California estimates that 10% of unsheltered people in Los Angeles who took part in street outreach programmes had been diagnosed with a psychotic disorder of the kind that CARE court is supposed to help manage. Because more than 100,000 Californians are sleeping rough, the state thinks that up to 12,000 people may initially be eligible for treatment.

A swinging pendulum

The schemes may be different, but the outrage they inspire is similar. Any discussion of compulsory treatment for the mentally ill is tangled up in a decades-long fight over the balance between protecting people's civil liberties and bodily autonomy, and ensuring their safety and that of others. Officials and critics alike are squeamish about any reform that evokes the horrors of state-run asylums in the 20th century, which were often unsanitary, overcrowded and understaffed, and sometimes just cruel. When government-run hospitals were shut down, community-based care was supposed to take their place. Instead, patients were often discharged to underfunded boarding houses and shelters. "We have not only abandoned people with severe mental illness to the jails, but also to the streets," says Elizabeth Bromley, a psychiatrist at UCLA.

Many liberals blame Ronald Reagan for the government's abandonment of mentally ill Americans. As governor of California in 1967, Reagan signed a landmark bill for patients' rights, but then cut funding for mental-health care. As president in 1981, he rescinded federal funds for state mental-health services. But Alex Barnard, a sociologist at New York University, argues that heaping blame on Reagan is too simple. "Many administrations in California have had opportunities to reverse Reagan," he says. Perpetuating the myth of Reagan's total culpability, he adds, is "a way of distracting ourselves from the real challenge of building a system today that meets people's needs, rather than just wishing we had it 50 years ago."

Civil-rights advocates in both states worry that the new policies herald a swing of the pendulum back towards confinement. It is unclear how often mentally ill people are detained for examination or treatment, but recent research suggests that the average yearly detention rate in 22 states increased by 13% between 2012 and 2016. Many critics argue that involuntary treatment is not only brutal, but ineffective. But the evidence is mixed and conducting research is tricky, says Mr Barnard. "You can't randomly assign people to voluntary and involuntary treatment if you think that somebody is at risk of killing themselves," he explains. Mr Adams's plan and Mr Newsom's CARE court both aim to exhaust options for voluntary treatment before mandating medication or hospital.

Logistical questions abound, too. Luke Bergmann, the director of behavioural health services in San Diego County, worries about how severely ill, often isolated patients are supposed to travel to their court appointments, and whether there will be enough beds in long-term care facilities to house them. Watchdogs on both coasts wonder what kind of clinical training police will receive, and whether racial bias will lead to worse outcomes for black and Hispanic homeless people. Brian Stettin, Mr Adams's senior adviser for mental health, admits that confrontations with police can be traumatic, and stresses that cops will work alongside medical workers.

That Mr Newsom and Mr Adams are rethinking involuntary treatment reflects the failures of America's mental-health system, but also their recognition that homelessness represents a political problem for their administrations—and their careers. As unsheltered homelessness has grown, Americans have become accustomed to public displays of profound suffering. Californians routinely say that homelessness is one of the most important issues facing the state; New Yorkers worry most about crime.

Allowing the mentally ill to languish in the streets contributes to a feeling that public safety and quality of life in America's biggest cities are deteriorating. Mr Newsom and Mr Adams are two of the Democratic Party's most charismatic and ambitious politicians. Should either seek higher office one day, they will be asked what they did to solve the hardest problems in their respective domains. Now they will at least have an answer. ■

Anti-Trump Republicans

Move along

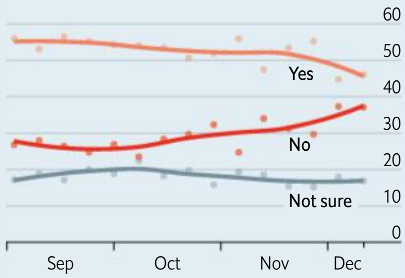
WASHINGTON, DC

Donald Trump's popularity with Republican voters is sinking

IN HIS BOOK "The Art of the Deal", Donald Trump admonishes businessmen who engage in cons and implores entrepreneurs to deliver results for their clients. Eventually, he says, a con artist can no longer outrun the people they've betrayed. "You can't con people, at least not for long," the former president wrote in his business bestseller, written before his political ascent. "You can create excitement, you can do wonderful promotion and get all kinds of press…But if you don't deliver the goods, people will eventually catch on." These remarks are proving prescient about the business of politics. After defeat in three key elections in a row, Republicans are catching on to the con.

Pump or dump?

"Should Donald Trump run for president again in 2024?", % of Republicans responding*, 2022



*Includes Republican-leaning Independents
Sources: YouGov; *The Economist*

New polling from *The Economist* and YouGov, our partner in weekly surveys of American adults, shows Mr Trump's popularity with Republican voters sinking. According to YouGov's latest poll, conducted between December 10th and 13th, just 46% of respondents who said they were either Republicans or independents who "lean towards" the Republican Party said they wanted Mr Trump to run for their party's nomination again. And 37% did not want him to run. These polls were in the field before the House select committee investigating January 6th released its full report, which seems unlikely to help the former president either.

Compared with previous YouGov polls, that is the highest share yet of anti-Trump members of the Republican rank-and-file. In September, when YouGov began asking this question regularly, just 27% of Republicans said they did not want the former president to run again. Since then, the share who want Mr Trump to make America great again, again, has fallen from 56% to 46% (see chart). Some of the biggest declines have been among Republican wom-

en (57% to 41%), African-Americans (66% to 42%) and Republican voters who do not have college degrees (62% to 52%).

Mr Trump has also been losing ground in early polls for the Republican nomination in 2024. Several recent surveys have found him trailing Florida's governor, Ron DeSantis, in a head-to-head matchup. One poll from Suffolk University in Boston found support for Mr DeSantis at 56%, a full 23 points ahead of Mr Trump. Other surveys disagree. One released by Morning Consult on December 11th shows Mr Trump 18 points ahead of Mr DeSantis. The Republican primary is 14 months away, so these polls are of little use in predicting what would happen in that contest. But they do show that the former president's return is not as inevitable as once thought.

True, Mr Trump does not need all Republican primary voters to unite behind him in order to secure the nomination. He could win with a plurality. That is because the election rules adopted by many states' Republican Party committees, which oversee the selection of the presidential candidate, grant all or a significant number of a state's delegates to the national party convention to the winner of the statewide popular vote. That is how Mr Trump was able to amass a large lead in pledged delegates early in the contest in 2016, despite polling between 30% and 35% for most of February and March, when the earliest-voting states made their choice.

Though his fortunes are fading, Mr Trump may still have sufficient underlying support to repeat this trick. YouGov's poll reveals that 38% of Republicans identify themselves as "MAGA" Republicans and 68% still rate Mr Trump "very" or "somewhat" favourably. If the rest of the party is unable to unite behind a challenger—as was the case in 2016 when Ted Cruz, a senator from Texas, John Kasich, then the governor of Ohio, and Marco Rubio, a senator from Florida, split the anti-Trump vote—he could consolidate enough delegates to clinch the nomination again. It is also possible, though unlikely, that the state party committees could change the delegation-selection rules before 2024.

A poor performance by Republicans in this year's midterms underlined Mr Trump's political weaknesses. Most of the candidates for Congress that he endorsed did worse than expected and most of those running for statewide office lost. Any dispassionate observer reflecting on his performances in 2018, 2020 and 2022 will see that Mr Trump has now directly or indirectly lost key elections three times and never secured the votes of a majority of Americans (in 2016 the electoral college, not the people, put him in the White House). Most Americans long ago decided that it was time to move on. Republican voters may at last be deciding the same. ■

Lifting Title 42

Disorder on the border

DALLAS

Joe Biden's border bind

As a baby, Jesus was a migrant, forced to flee the threat of violence and seek refuge in Egypt. So it is perhaps fitting that in the run-up to the day celebrating Jesus's birth America is confronted by problems about how to manage an influx of migrants arriving at its southern border. A border policy called "Title 42", which was due to expire on December 21st, was granted a temporary administrative stay by the Supreme Court. Depending on what the court decides, the controversial policy could be wound down in a matter of days.

Title 42 is an obscure public-health rule (first invoked during the Trump administration) which enabled America to expel people who crossed the border without authorisation, due to the risk covid-19 posed. It has doubled as an immigration tool used to manage the large numbers of people arriving at America's southern border, driven by instability in their home countries and, over the past two years, the perception that Joe Biden's administration would be more welcoming than Donald Trump's was. From March 2020 through October 2022, Title 42 was invoked to rapidly process and expel migrants around 2.5m times.

Republicans, who have made tighter border security a core issue, hoped that Milton Friedman's aphorism, that nothing is so permanent as a temporary government programme, would prove true for Title 42. But in April the Centres for Disease Control and Prevention (CDC) announced it was no longer necessary for public-health purposes. Nineteen Republican states sued to prevent a wind-down, saying that without it they would be overwhelmed by migrants. On December 16th a federal judge ruled against Republican states requesting that its cancellation be delayed—which is why they asked the Supreme Court to grant an "administrative" stay to keep Title 42 in place temporarily.



Last to make it home

Officials in El Paso, Texas, expect arrivals to increase by as much as 40% once Title 42 is lifted. Greg Abbott, Texas's Republican governor, has predicted "total chaos". However, the furore surrounding Title 42 distracts from a broader conversation that needs to happen in Washington, DC, about America's immigration laws and how they should be rethought.

The last time America enacted broad immigration reform was in 1986. Since then there have been three big changes in arrivals, besides their greater number. First, whereas most used to be Mexicans, migrants are now much more of a mix, including Venezuelans and Cubans, which increases the challenge of sending them back. Second, the number of family units and children has risen: typical migrants are no longer single Mexican males seeking to work in America. Third, the share of people claiming asylum has swelled, complicating efforts to decide on their claims quickly. "Asylum used to be the exception to the rule at the border", but "now the exception has overtaken the rule," says Theresa Cardinal Brown at the Bipartisan Policy Centre, a think-tank.

The Biden administration is hiring 3,500 extra staff and contractors at the border to deal with the influx. But it is under pressure to do more. There are reportedly discussions in the White House about whether to embrace some Trump-like controls, for example limiting asylum eligibility to people who would be tortured if they returned home, or restricting people from applying for asylum in America if they passed through another country where it was safe to apply. Immigration activists will balk at the revival of policies reminiscent of Mr Biden's predecessor. Once again Mr Biden faces a test of whether he is willing to anger progressives.

Ultimately Congress needs to change immigration law to deal with the border better, revamping asylum laws and creating more legal pathways to come and work. It is "extremely unlikely" to do so in the next Congress, predicts Aaron Reichlin-Melnick of the American Immigration Council, another think-tank. In 2023 the Republican-controlled House is expected to hold hearings and push for the impeachment of the secretary of homeland security, Alejandro Mayorkas, who oversees immigration. That would keep the border in the headlines but do nothing to fix it. ■

Lexington | Listen up

Free speech is not in peril in America. The problem is deeper than that



The great American debate about free speech is flaring again, this time around Elon Musk's curating of Twitter. He is restoring speech rights or denying them, depending on your view. The predictable parties are declaring their positions and luxuriating in righteousness. They will change few minds, also predictably, because they are tussling over the wrong end of the stick. America has no problem with speech. It has a problem with listening.

Does the distinction seem specious? Speaking and listening do not mean much without each other. But emphasis matters. Focusing on the right to speak rather than the obligation to listen substitutes the easy question for the hard one, and a freedom secured by law for a discipline that must be instilled by culture. It also ensures that the debate—too grand a word, really—remains futile.

In a self-satirising proof of how emphasising speech-rights leads people to talk past each other, Yale Law students said they were exercising speech-rights last spring when they shouted down a free-speech event because they disapproved of one panellist, a conservative Christian. "You're disrupting *us*!" a protester shouted at Kate Stith, the professor moderating the event.

Newspapers continue to tie themselves in knots trying to reconcile the politics of their staff with covering a fractious democracy. They tend to default to framing their purpose in terms of protecting the right to speak—as though a publication is meant to serve its interview subjects and op-ed writers—rather than of protecting readers' opportunity to understand the world.

This tripped up the editorial board of the *New York Times* a few days after the incident at Yale. In an attempt to defend free speech, the *Times* wound up coming out against it. "Americans are losing hold of a fundamental right as citizens of a free country: the right to speak their minds and voice their opinions in public without fear of being shamed or shunned," the newspaper declared. There is no right in America, of course, to silence one's critics. The *Times* itself is in the business of shaming and shunning (Lexington has some experience of this), and that work is safeguarded, thank goodness, by the First Amendment.

What the paper failed to articulate was why readers (and reporters) needed to listen to views they might find repugnant. The moral logic that once inspired newsrooms—to resist dangerous movements like white nationalism, readers needed to understand them—has been stood on its head. Now, to report empathetically about people and ideas deemed dangerous is to "platform" or "normalise" them. Readers are too dim to be trusted with such information. Journalists are excoriated just for interviewing supporters of Donald Trump. "There's nothing more to learn from them," sneered a *Vanity Fair* columnist, more than a year before some of them attacked the Capitol.

More speech alone will fix none of this. Besides, insisting that someone must be allowed to speak can violate free-speech rights, as the dean of Berkeley Law School recently told the *Wall Street Journal*. He was explaining why nine student groups at the school were justified in banning Zionists from speaking at their events, even though he considered the rule anti-Semitic.

Like those law students, all Americans can now relax in homogeneous spaces where they hear plenty of speech but nothing that might confound them. Whatever objectionable ideas or information they do encounter will arrive safely filtered through the congenial viewpoint of their chosen cable-news channel, social-media group, newspaper or Substack writer. They can duck the work of hearing alien arguments and sharpening their own ideas or even adjusting them—the kind of work that turns diversity in a pluralistic democracy into a source of resilience rather than a fatally fissiparous weakness.

In 1953, after he finished "Mariners, Renegades & Castaways", his magnificent study of "Moby Dick", the Trinidadian intellectual C.L.R. James appended an essay about the circumstances in which he wrote it: he was imprisoned on Ellis Island, awaiting a decision about whether he would be deported. He was disappointed that fellow ex-radicals chose not to help him. Instead, he found, "old-fashioned American liberals" spoke up.

James brooded upon a quotation from Voltaire above the letters column in the *New York Herald Tribune*, a newspaper now extinct: "I wholly disapprove of what you say and I shall defend to the death your right to say it." In the past, he wrote, "I have smiled indulgently at the grandiloquent statements and illusions of these old liberals." But he began thinking about the conditions in which they struggled to establish the principles he had relied upon. "Today it is not their limitations I am conscious of," he concluded, "but rather the enormous service they did to civilisation."

So many Starbucks

To James, who was deported, one of the most vile characters in "Moby Dick" is Starbuck, the first mate. Starbuck knows Ahab is dooming the ship but lacks the courage to stand up to him. "His story", James wrote from the depths of disillusion with the Soviet Union and horror at Nazi Germany, "is the story of the liberals and democrats who during the last quarter of a century have led the capitulation to the totalitarians in country after country."

There is good reason to feel optimistic about America. Democrats heard voters' concerns about crime and inflation and tempered their more extreme impulses. Voters heard the lunacy of the election-deniers and rejected them. Jurors heard cases against the insurrectionists of January 6th and delivered justice.

But just as Republican politicians tremble before Mr Trump, some leaders of American institutions, afraid of their students or staff, are still treading Starbuck's path rather than defending the principles that once made their institutions integral to the American project. They might instead consider the example of Ms Stith as she faced the Yale students. "Grow up," she urged them. ■



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Mexico

Man bites watchdog

MEXICO CITY

President Andrés Manuel López Obrador is nobbling the electoral commission

When Mexico's president decides he wants to do something, he does not give up easily. Andrés Manuel López Obrador has long yearned to weaken Mexico's electoral body, the Instituto Nacional Electoral, known as the INE. He has held a grudge against it since 2006, when he claims that the INE rigged the vote in a presidential election, causing him to lose to Felipe Calderón, a centre-right politician, by 0.6 percentage points. There is no evidence that this is true.

Mr López Obrador's resolve has only hardened in the face of growing opposition. After tens of thousands of protesters marched in November against his plan to slash the INE's size, staff and budget, he put on his own protest—dubiously using government funds to do so. When he failed to get the two-thirds majority needed in the lower chamber for his initial proposal, which involved altering the constitution, he reverted to a package of laws which required only a simple majority to pass.

On December 15th, the day Congress stopped for the holidays, the upper chamber voted to approve the package, which makes changes to over 450 articles in five current laws, as well as introducing a new piece of legislation.

The event was not without rancour: one senator dressed as a dinosaur to protest against the "Jurassic plan". The reforms will be signed into law by Mr López Obrador in 2023, although opposition lawmakers and the INE will try to appeal to the Supreme Court to have the package struck down for breaching the constitution.

The reforms are worrying partly because Mexico only became a true democracy in 2000. Key to this process was the creation of the INE. Surveys show that Mexicans trust the INE more than any other institution, bar the armed forces. By nobbling it, Mr López Obrador makes it less likely that elections will be free and fair.

Some of the most damaging ideas of the president's proposed constitutional amendment were removed. The INE will not be dismantled and its senior people will still be elected by parliamentary votes, rather than directly by the public, as Mr López Obrador had wanted. The electoral court will not be subsumed into the Supreme Court. Still, there is much that is concerning. "This could mean stepping back over the line from a democratic system to an authoritarian one," says Carlos Bravo Regidor, a political analyst.

By shrinking the INE, the new rules erode its ability to do its job. This includes running elections and monitoring that parties obey the law, along with issuing voter credentials for 97m Mexicans that are used as identity cards. The law scraps the INE's 300 permanent local branches, responsible for setting up polling stations and running elections in their areas. They will now exist only temporarily, around election time. That entails laying off some 85% of the INE's 2,500 staff. The rules also curb the INE's powers to audit, regulate and punish breaches of electoral law.

There will also be less to regulate, as Mexico's strict limits on campaigning will become looser. These limits were designed to make elections fairer by reducing the advantages of incumbency. Until now, candidates were banned from campaigning more than three months ahead of elections and in the two days immediately preceding them. Public servants, including the presi- ▶▶

dent, were barred from boasting about their achievements during the campaign period. For the past few years TV and radio slots have been distributed equally to parties by the INE, and parties have not been allowed to buy their own. These tough rules were a reaction to the 70-year dominance of the Institutional Revolutionary Party (PRI), which used its deep pockets and chokehold on public office to drown out its rivals. Indeed it was Mr López Obrador and other leftists who campaigned for tighter rules after his loss in 2006.

But from now on campaigning is not restricted to a set period of time. People in positions of power, including the president, can openly campaign for their party and chosen candidates whenever they like—although they cannot explicitly call for people to vote for them. A rule which bans the use of public funds for "self-promotion" will be scrapped; in theory, the president could use public coffers to print a million leaflets lauding his successes (though such leaflets could not ask people to vote for him).

Since Morena, the president's party, is so dominant, this tilts the playing field in its favour, giving it many of the same tools used by the PRI in the past. "It ties the opposition's hands behind their backs while giving steroids to the ruling party," says Denise Dresser, an academic.

The president says that the reform will save money. But the INE's budget in 2022 is 13.9bn pesos ($700m), just 0.2% of federal spending. The INE is large, but so is Mexico: setting up polling booths across it is no easy task. Elections cannot be run on the cheap in a country that in the 1970s and 1980s was racked by electoral fraud.

The INE must make all the changes by August 2023, a rapid turnaround. In 2024 Mexico will hold elections for a new president and Congress (Mr López Obrador cannot run, since he is limited to one term). Mr Regidor reckons the reform could result in political parties, particularly the ruling one, engaging in illegal behaviour, knowing that the electoral authority is not strong enough to punish them.

Morena has broken rules in the past. Mr López Obrador was found by the INE to have breached electoral laws 29 times in the run-up to midterm elections in 2021, by praising his party during the campaigning period. In December the INE accused Claudia Sheinbaum, the mayor of Mexico City and the favourite to succeed Mr López Obrador, of campaigning illegally early for the election in 2024. It deemed a rally in June, at which she spoke about her record, to have been a campaign event. She says it was not. She is also accused of promoting hashtags such as "EsClaudia" ("It's Claudia") on social media and on murals across the country. Both would no longer be illegal under the new law. ■

Argentina

Lessons from Messi

BUENOS AIRES

Argentina's politicians should learn from its footballers

THEY BEGAN in Qatar by losing to Saudi Arabia, one of the least-fancied teams in the tournament. Argentina's footballers ended it as World Cup champions, beating France, the holders, in a penalty shoot-out after a thrilling 3-3 draw. *La selección*, as the national team is known, took home Argentina's third cup, and the first in 36 years.

Argentina expected, and in the end got, a ferocious match. When France won the World Cup in 2018, its team was younger and its players more expensive than almost any other. But Argentina saw them off this time—eventually, having led 2-0 and then 3-2. Kylian Mbappé hauled France back into the game with a penalty and a goal in normal play and then another spot-kick in extra time, becoming only the second man to score three times in a World Cup final. But the glory will belong to Lionel Messi, Argentina's 35-year-old captain.

Argentina's fans had already made this World Cup about Mr Messi. Around 50,000 Argentine supporters descended on Doha for the final, compared with under 10,000 from France, a far richer and more populous country. The final settled any debate, Argentines crow, about who the greatest living footballer is. Yet Mr Messi has had a chequered relationship with his country, which he left at 13 to train in Europe.

Compared with Diego Maradona, an Argentine megastar of an earlier generation, Mr Messi was long deemed too timid. Maradona, who died in 2020, was overheard in 2016 saying that Mr Messi didn't "have enough personality to be a leader". Argentines resented the fact that he won often with Barcelona, his club in Spain for most of his career (he now plays for Paris Saint-Germain), but not with the national squad. That changed in 2021, when Argentina won the Copa América, Latin America's biggest competition, for the first time in 28 years. Messi-mania has now gripped the country.


The hand of the GOAT

In Argentina, the beautiful game is more than a sport. "When they ask you who you are, you answer: I am a son, I am a father and I belong to such and such team," says Ariel Scher, a journalist. If football is a religion in Argentina, then a World Cup victory is its spiritual apotheosis—and this one comes at a time of national agony. Argentina has been battered in 2022 by record droughts, inflation reaching 100% and fractious politics. On December 6th Cristina Fernández de Kirchner, the current vice-president, was sentenced to six years in jail over a corruption scandal.

Against this chaotic backdrop, the national team has spread joy. Indeed Argentina's political class could learn from its sportsmen. The team is more close-knit than in previous World Cups, says Klaus Gallo, a historian. The country's divided government, in which the moderate president and Ms Fernández go for months without speaking, could take note. And much as some Argentines used to deride Mr Messi, Argentine politicians have a habit of undermining their best assets. Ms Fernández and other leftists vilify Argentina's agribusiness and the private sector, though these are the motors of the economy. Argentina's politicians could learn from the country's belated embrace of Mr Messi—if you've got it, appreciate it.

The final lesson comes from Mr Messi and *la selección*'s manager, Lionel Scaloni. Over the past five World Cups the country's team has done better under humble managers, says Andrés Malamud, an Argentine political scientist at the University of Lisbon. "And they fared badly with managers who were showmen and braggarts." The prudence and professionalism of Mr Scaloni and his star player offer a sobering contrast to the amateurism with which Argentina's economy is managed. Argentina's political leaders talk a good game, but fail to deliver results. Unlike the quietly spoken, ruthlessly goal-focused Mr Messi. ■



Urban redevelopment

Slum-mop billionaire

MUMBAI

Can India's richest man remake Mumbai's biggest slum?

DHARAVI IS A square mile of corrugated iron, concrete blocks and plastic sheeting in the middle of Mumbai, crammed with humanity. With perhaps 1m residents, the slum is one of the world's biggest. As a setting for outlandish rags-to-riches stories, it may be the best-known. In "Slumdog Millionaire", which won eight Oscars in 2009, a Dharavi youth's hardscrabble experiences helped him win the Indian version of "Who Wants to be a Millionaire?" In "Gully Boy", a more recent Bollywood potboiler, a slum-dwelling rapper overcomes prejudice to win the hearts of the city's Westernised overclass. But Dharavi's latest saga may be its most dramatic yet.

Slap bang in the middle of India's space-constrained financial capital, the slum is a huge obstacle to Mumbai's—and therefore India's—development. The state government of Maharashtra, in which Mumbai sits, has for nearly two decades therefore been trying to entice private developers to Dharavi with promises of rich returns. Yet it has failed, chiefly because of the main impediment to most big infrastructure projects in India. Many of the slum-dwellers don't want to move. And in India poor people have votes.

Redeveloping the slum in a way that avoids political meltdown while generating an attractive return is a formidable endeavour. S.V.R. Srinivas, the official in charge of the project, has called it "by far one of the most complex tasks ever to be undertaken in the world". Yet last month came news of a possible breakthrough. A fresh contract to fix up Dharavi was awarded to Gautam Adani, Asia's richest and perhaps India's best-connected man.

Mr Adani, a former diamond trader whose vast conglomerate controls ports, solar farms, food processing, coal mines and much else, has released few details of the deal, which is expected to be signed in the coming weeks. But the long-standing plan is to rehouse those Dharavi residents who settled in the slum before 2000 in new flats built within its borders. Most others will be offered new public rental housing within a 10km (6.2-mile) radius, with an option to buy the properties over time.

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Many of the slum's thousands of cottage industries, which churn out textiles, leather and metal goods by the truckload, will also be relocated within Dharavi's boundaries, even if they may have to downsize. Those considered to be polluting will be excluded. Whatever former slumland remains will be for Mr Adani. Superbly located on three suburban railway lines, an upcoming metro line and adjacent to Mumbai's prime commercial district, it could be worth 30,000-40,000 rupees ($360-480) a square foot at today's rates, reckons Gulam Zia of Knight Frank India, a property firm.

Dharavi's location and fame make it a powerful example of a much bigger problem. India's cities are home to over a third of its population, or around 480m people, and are the engines of its growth. Yet the poor conditions in which most city-dwellers live, learn and labour are a blight and significant speed limit. Around half live in slums and a third without a connection to piped water, according to the UN. In 2016 a third of India's urban-dwellers lived more than three to a room. In Dharavi's hutments, as its slum shacks are called, a dozen people to a tiny room is not uncommon. "To live in a proper home, to have a toilet, it ▸▸

is a matter of dignity," says Raju Korde, an entrepreneur in Dharavi.

As so often in India, if the problem is allowed to fester it will grow. The UN reckons India's urban population will rise to 43% of the total by 2035. So there is a lot riding on Mr Adani's plan—and the tycoon will embark on it with two great advantages. First, a capacity to finance its large upfront costs in the absence of any return for several years. Mr Adani secured the contract by guaranteeing a minimum investment of 50.7bn rupees ($614m). Pankaj Kapoor of Liases Foras, a real-estate research firm, reckons the total cost of the project will be around 230bn rupees.

Second, Mr Adani will have strong support from the Bharatiya Janata Party (BJP), which is the power behind Maharashtra's state government as well as in Delhi. The BJP has made infrastructure development central to its agenda. And Mr Adani is a close ally of its leader, Narendra Modi, India's prime minister. Where previous failed redevelopments of Dharavi were "developer driven", notes Mr Srinivas, the state government will now be more involved. It will form a special-purpose vehicle for the venture with Mr Adani's group and take a 20% stake in the project.

Even so, the giant slum remains daunting. "We are not in a dictatorship," says Mr Srinivas. "Doing this project requires consensus." Yet so many Dharavi residents will lose out to the redevelopment that consensus is hard to imagine. Slum-dwellers who are eligible for a new home worry that they will lose their current good access to schools, meeting-places and the sense of community that is richly evident in Dharavi's caste- and ethnically-based quarters. Many do not trust the government's promises. Mumbai abounds with cases of former slum residents stuck in so-called transit housing after the developers of their new homes went bust.

The slum's small-business owners are even more afraid of being uprooted, especially those who face being dispatched far away. "No one is against development," says Mehmood Khan, who runs an aluminium-recycling business in Dharavi's industrial cluster. "But if the residents are being resettled locally we should be, too." In fact, only around 30% of the slum-dwellers are eligible for free rehousing. And among the rest are many Dharavi residents who have spent thousands of rupees to buy a slum dwelling which, lacking title, now looks worthless. They will not be dispossessed without a fight.

The slum does not feel braced for conflict, at least. There has been little organised opposition to the latest redevelopment plan. Decades of failed schemes have bred a certain fatalism, or complacency, in Dharavi. Mr Adani will have seven years to complete the public-housing part of the project after the contract is signed; he will have another ten years to develop the outstanding slumland. "Ask anyone in Dharavi and they will say, 'Why talk about it? If it does happen maybe it will happen in 20 years,'" says Laxmi, a third-generation resident, who works in a crèche for the children of ragpickers. The combination of Mr Adani and his Hindu-nationalist allies looks like an unprecedented force for change in Dharavi. But many locals think they have seen this film before. ■

Urban redevelopment II

Dumplings and skewers

TOYAMA

Japanese cities are being retrofitted for an ageing population

TOYAMA NESTLES between a deep blue bay and snow-topped peaks, some 250km northwest of Tokyo. In many ways, it is a quintessential regional Japanese city: its residents are greying, its industry is stable but sclerotic, its cuisine is exquisite. American firebombs targeting its steel mills wiped out 99% of Toyama's centre during the second world war. Afterwards, the city was rapidly rebuilt and sprawled as its population grew. But that was then. Since the 1990s the city of 414,000 (and falling) has been battling the ills of an ageing population: ballooning bills, falling tax revenues and an out-of-date urban plan.

Yet Toyama has battled much better than most—even managing a modest revival. A sleek new light rail line, Japan's first, snakes through its city centre. Skirting a spruced-up medieval castle, walls white as snow, the line runs to a formerly neglected port neighbourhood further north along the bay. A former elementary school, its classrooms surplus to requirement, has been turned into a snazzy old folks' centre with hot-spring exercise pools. On a new central plaza stands the crown jewel of the renewed Toyama: a cultural complex designed by Kuma Kengo, a star architect, containing an extensive library and a glass art museum.


Compact little runner in Toyama

The city has adopted what urban planners call a "compact city" policy. Recognising that sprawl is expensive to build, maintain and service, planners try to make cities smaller, denser and less car-reliant. These aims, long pursued in Europe, are relatively new to Japan. Local governments consider them a means to "triage municipal liabilities" amid demographic change, says Andre Sorensen of the University of Toronto. The World Bank calls Toyama "a global role model" for compact cities.

Planners there have pursued what they call a "dumpling and skewer" structure, in which denser hubs (the dumplings) are linked by public transport (the skewers). Making it work required first winning over lots of recalcitrant locals. Mori Masashi, who was Toyama's mayor from 2002 to 2021 and spearheaded the transformation, held hundreds of town hall discussions of the plan. "I had to convince people to think 30 years into the future," he explains. He also travelled widely to learn from cities as far afield as Amsterdam and Portland.

Thoughtful design helped. The new light rail has carriages that align flush with station platforms, eliminating the steps that can trip up elderly riders. Lest youngsters feel left out, the city also built a skatepark, a rarity in Japan. Such projects made canny use of the city's existing resources. Old rail tracks were repurposed for the new light rail, a move that reduced costs by 75%, according to the World Bank. While the government handled construction, it farmed the rail network out to an expert private firm. It also offered subsidies to entice people to move into the dumplings.

The policy, though no panacea for the demographic squeeze, changed Toyama's trajectory. The city arrested the outflow of people from its centre: net migration into the downtown area was negative before 2008 but has since been growing. In 2005 only 28% of Toyama residents lived along public-transit corridors; by 2019 nearly 40% did. The new developments have made property more attractive. Land prices in the city centre had been declining by around 2% a year until 2012; in the decade since, they have grown by an average of 2% per year, with gains in some areas reaching as high as 6%. Using increased tax revenue from the revived city centre to support more remote parts of the region is a "basic model for other cities", says Nitta Hachiro, the governor of the surrounding prefecture, also called Toyama.

The new urban design may have other long-term benefits. Public transport use among those aged 60 and older has more than trebled. Sakamoto Kazuko, a 73-year-old local, says the new network has made life "more convenient". She goes out more often than before, using a discount rail pass for the elderly to visit the city centre and stroll while her grandchildren are at school. Small-scale studies show promising results: old folks who stay active by using their discount transit passes need less nursing care than those who do not.

For those living far from the centre, the benefits are less clear. The compact city is a "bubble" which people outside it look on with "cold eyes", says one 73-year-old shopkeeper in the suburbs. Local governments with ageing, shrinking populations face hard choices about where to keep water and sewers running and where to close schools and clinics. Even as cities strive to become more compact, they may fail to reach the density necessary to keep businesses profitable, says Okata Junichiro, also of the University of Tokyo. But they must try. Japanese cities once grew boldly. As the population ages and declines, they must learn to shrink with grace. ■

Suburban redevelopment

Moving house

LISMORE

Climate change is making some Australian suburbs uninhabitable

FROM HER balcony in Lismore, a town in northern New South Wales, Maralyn Schofield surveys the wreckage of her neighbourhood. Located at a confluence of the slow-moving Wilsons River, her house was erected on 13-metre stilts to preserve it from seasonal floods. Yet when Lismore was inundated last February, after days of torrential rainstorms, the floodwaters poured into Ms Schofield's sitting-room.

She was rescued by boat and deposited on a neighbour's roof. At least her house, now patched up with blankets and election billboards for walls, is still standing, she bravely notes. The house next door is in a crumpled heap. Another was washed away.

Australia's extreme climate makes it especially vulnerable to global warming. Much of its vast interior is semi-arid and, with temperatures 1.5°C above the long-term average, increasingly beset by wildfires and drought. A warmer atmosphere can also hold more moisture, which makes the country subject to record-breaking precipitation—such as the massive rainfall and flooding it has suffered this year.

Brisbane received almost a year's worth of rain in five days last February, costing A$656m ($444m) in damage. Suburbs west of Sydney were subsumed in July for the fourth time in 18 months. Vast quantities of water recently gushed through the Murray-Darling basin, a giant river system in eastern Australia, swallowing several towns. This year's floods have claimed the lives of at least 27 people and destroyed or damaged well over 28,000 houses. And as this article went to press South Australia was threatened by a fresh inundation.

Conservative politicians, often in hock to the coal industry, denied for years that such disasters were getting worse. This not only stopped Australia curbing its emissions, it also prevented it from taking effective measures to adapt to the warming they cause. The government "muddled through with easy options", says Jamie Pittock of the Australian National University. It built levees, raised homes and splurged on post-disaster clean-ups. Australia is estimated to have spent almost 50 times as much responding to disasters in the past couple of decades as on building more resilient houses and other infrastructure.

But as the cost of climate-related damage rises, it is becoming harder to ignore. According to the Climate Council, an advocacy group, about one in 25 Australian homes could be uninsurable due to excessive flood risk by 2030.

The Labor government of Anthony Albanese, elected in May, has set stiffer emissions-reduction targets. Having campaigned on a promise to increase funding for climate-related disasters, it has also helped launch a more serious debate on how Australia's towns and suburbs can adapt to the effects of warming. Some will have to be abandoned. There is a "recognition that we actually have to undergo managed retreat and pay people to move," says Mr Pittock. Many in Lismore's battered suburbs concur. "I love my house," says Ms Schofield, but living in the flood-zone has become "just too risky".

One solution is for governments to "buy back" untenable homes in order to take them off the market. In October state and federal governments launched an A$800m "resilience" fund that will buy 2,000 properties in northern New South Wales from people facing a "catastrophic risk to life". The fund will also provide money for owners to raise or waterproof their flooring. A similar scheme, of A$740m, has been established in Queensland.

Another approach is to help locals to exchange their ruined plots for safer ones, as happened in Grantham, a small town west of Brisbane. After floods in 2011 killed 12 people and destroyed much of Grantham's infrastructure, the local council bought fields on higher ground and moved dozens of families to them under a land-swap agreement. Some homeowners simply cut their properties free of the foundations and carted them uphill.

Where Australians choose not to leave disaster-prone areas, state governments may end up forcibly acquiring their land. Meanwhile, the short-termism that has got Australia into this fix endures. Even as New South Wales and other states are trying to nudge people out of some high-risk areas, they are funnelling them into others. Thus, for example, the intensive development taking place on the floodplains west of Sydney.

In 2017 a federal infrastructure agency predicted that the number of people living on its floodplains could double by 2050, to over 260,000. Yet the city's western suburbs already see regular heavy flooding. The state's premier, Dominic Perrottet, recently promised to impose some building restrictions, but only in the most dangerous areas. "People have to live somewhere," he says. Yet fire and water will increasingly limit their options. ■



Antediluvian zoning down under



TELL THEM I MADE IT

Twelve year-old Arshi enrolled in school through GoodWeave's Child Friendly Community program which prevents child labor in home-based worker communities in India. All her life Arshi's parents have made a living at home stitching beads and sequins onto clothes sold in the United States and Europe. They are proud of their craft and want you to know they make the clothes you wear, and now with GoodWeave's educational support, Arshi has the chance to make her dreams come true.

GoodWeave creates visibility for people making products you buy and offers the best assurance no child labor is used.

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Health care

A covid stress test

China has made great efforts to build an affordable health system. Covid-19 is revealing how much remains to be fixed

WITHIN THE next month, China's medical institutions will face their "darkest hour". This warning by Zhang Wenhong, a prominent infectious-disease expert, has been circulated by state media. It reflects a view that not long ago would have been treated as heresy in "zero-covid" China. But with the virus now sweeping the country, including its hospitals, talk of crushing it has ceased. People are queuing for hours at fever clinics. Medical staff are falling sick in droves. In the coming weeks deaths will rise rapidly as the disease takes its toll on an undervaccinated population.

For much of the past three years, since cases of covid-19 were first detected in the central city of Wuhan, the government has viewed its handling of the pandemic with pride. It had succeeded in keeping covid at bay and deaths to an astonishingly small number compared with many other countries. It had also managed to turn this to great propaganda advantage. At least until late this year, when the virus began to run loose and protests erupted over often-brutally enforced lockdowns, many people appeared to buy the official line that China's accomplishments were the product of a superior political system, one said to be uniquely capable of mobilising people and resources on a scale needed to prevent the virus from spreading.

With zero-covid now all but abandoned and streets near-emptied not by lockdowns but by fear, the public's attention is turning to the health-care apparatus. In recent days calls in Beijing to 120, the number for medical emergencies, have risen to five or six times the normal level. "Covid chaos", as a newspaper in Beijing called it, has broken out in hospitals. People in many cities have been flocking to them, terrified even by mild infection with the virus. They were once told that it posed a grave threat to their lives. Now, dismissively, officials are calling the current Omicron variant flu-like. But immunity to covid is low in China, so the ballooning number of cases will result in many deaths: about 1.5m in the next few months, by *The Economist*'s worst-case estimate.

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32 Bertrand Russell on China

Fatalities on such a scale would still be lower, as a share of the population, than seen in many other countries as a result of covid. But they will raise questions in China about weaknesses in the country's health-care system and whether they may have contributed to people's suffering and the ordeal of medical staff.

It would not be the first time for such soul-searching. An outbreak of SARS, which was first detected in China in 2002 and killed hundreds, mostly within China, prompted much debate about the system's failings. Having initially covered up the emergence of SARS, officials became more open. Henk Bekedam, then the World Health Organisation's chief representative in Beijing, recalls a study by Chinese government researchers, funded by the WHO, that was completed in 2005. *China Youth Daily*, a state-controlled newspaper, revealed details of it with an eye-catching headline: "China's health reforms have not succeeded". It was "quite something" to see those words, says Mr Bekedam.

Under Xi Jinping, who became China's leader a decade ago, public acknowledgment of policy error would be harder to imagine. Perhaps, he may feel, there is less ▸▸

need of one. Much has been done to remedy the problems that SARS highlighted.

A big one was the public's fear of any contact with the health system because of the high cost of getting treated. Before SARS, community-level care had crumbled. Many state-owned enterprises and the "people's communes" that had once provided health services had been dismantled. Hospitals remained under state control but had become market-driven. To pad their budgets and the wallets of their staff they could set their own prices for drugs and treatments. In cities, only people with formal job contracts had access to insurance. Most of China's 900m rural dwellers had to pay for their own medical expenses.

After SARS, officials ramped up efforts to enroll rural residents in a government-funded health-insurance scheme. In 2007 they did the same in cities among those without formal jobs. Two years later the government unveiled a plan for health reform that aimed to provide affordable, basic care for everyone ("universal health coverage", as the WHO calls it) by 2020. It involved a big increase in government spending. The government's annual outlay on health as a share of GDP tripled to about 3% compared with the amount being spent at the time of SARS, the WHO reckons (see chart 1). By 2011 more than 95% of China's population had some form of government-financed health insurance. By 2017 the number of health workers per person had increased by more than 85% and the number of hospital beds by nearly 145%.

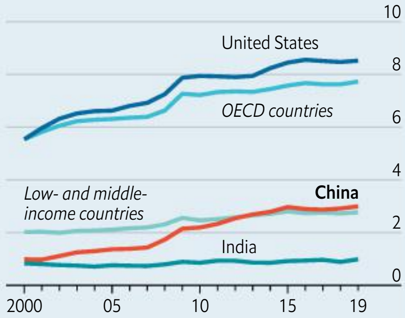
Lessons from Wuhan

Much, then, to crow about. But the eruption of covid in 2019 showed that a lot remained to be done. The SARS outbreak, tiny by comparison, had revealed woeful inadequacy in China's disease-surveillance apparatus. With American help, China tried to remedy this by training hundreds of people in how to respond to such events. But covid was rampant in Wuhan by the time the chief of the Chinese Centre for Disease Control and Prevention, George Gao, learned about it, according to reports.

What unfolded in Wuhan in 2020 exposed wider problems in the health-care system. The government's efforts to rebuild community-level care, and make it act as a gateway to hospitals like Britain's general-practitioner (GP) clinics, had clearly made little progress. Terrified residents of Wuhan, often with only mild symptoms of covid, rushed straight to hospitals—disdainful (as many Chinese are) of neighbourhood health centres where doctors tend to be less well-trained and equipment inferior. Writing in the *Chinese Journal of Health Policy*, four academics in Wuhan described the scene as "chaotic", like a bank run. Community health centres proved of little use. Their doctors were summoned to help out in hospitals. A national plan for health-care development had called for community clinics to have 3.5 health workers per 1,000 residents served by 2020. At the start of the pandemic, Wuhan's had only 2.7, the scholars noted. Stripped of their bare-bones staff, some clinics had to close as the virus swept the city.

Signs of swelling 1

Government health-care spending, % of GDP



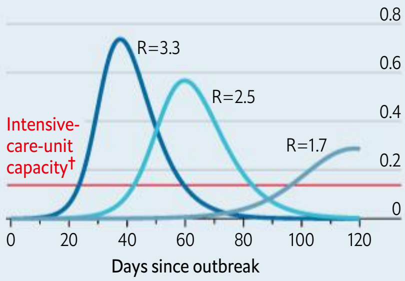
Source: World Health Organisation

Days after the first covid-related death was announced, the tide began to turn. A citywide lockdown was imposed. The city's government began demanding that citizens with symptoms be escorted to community health centres for checks. This helped to ease some of the pressure on hospitals. But the clinics struggled to cope. Many people with chronic conditions such as high blood pressure or diabetes had been getting their medicine and check-ups at hospitals. When hospitals stopped providing such services to limit the flow of people, community facilities were supposed to take up the reins. They were unprepared. "Throughout the city, it became difficult for outpatients with chronic diseases to see a doctor or get their medicine," the academics said.

As the virus runs rampant again, officials are trying to show they are better prepared. The city government in Beijing says that by the end of November—a week before the main mechanisms of zero-covid were dismantled—240 of the capital's community health centres had set up fever clinics. Within another few days the remaining 110 or so had opened them, too.

Hurting for beds 2

China, covid-19 model, demand for intensive-care beds, by R value*, m



Source: *The Economist* *R=new infections caused per person infected †As claimed by the government

But until recently they had not been busy vaccinating people. Amy, a vlogger in the city of Kunming, says she was fully vaccinated at her local clinic six months ago, but has heard nothing from them since about a booster. (Chinese-made vaccines, the only type permitted in China, are less effective than the ones commonly used in rich countries.) She has just tested positive, with mild symptoms. Were it to get more serious, official advice is that she go first to her community clinic. But Amy insists she would go to hospital, despite the queues and brevity of consultations. The quality of care is better there, she says.

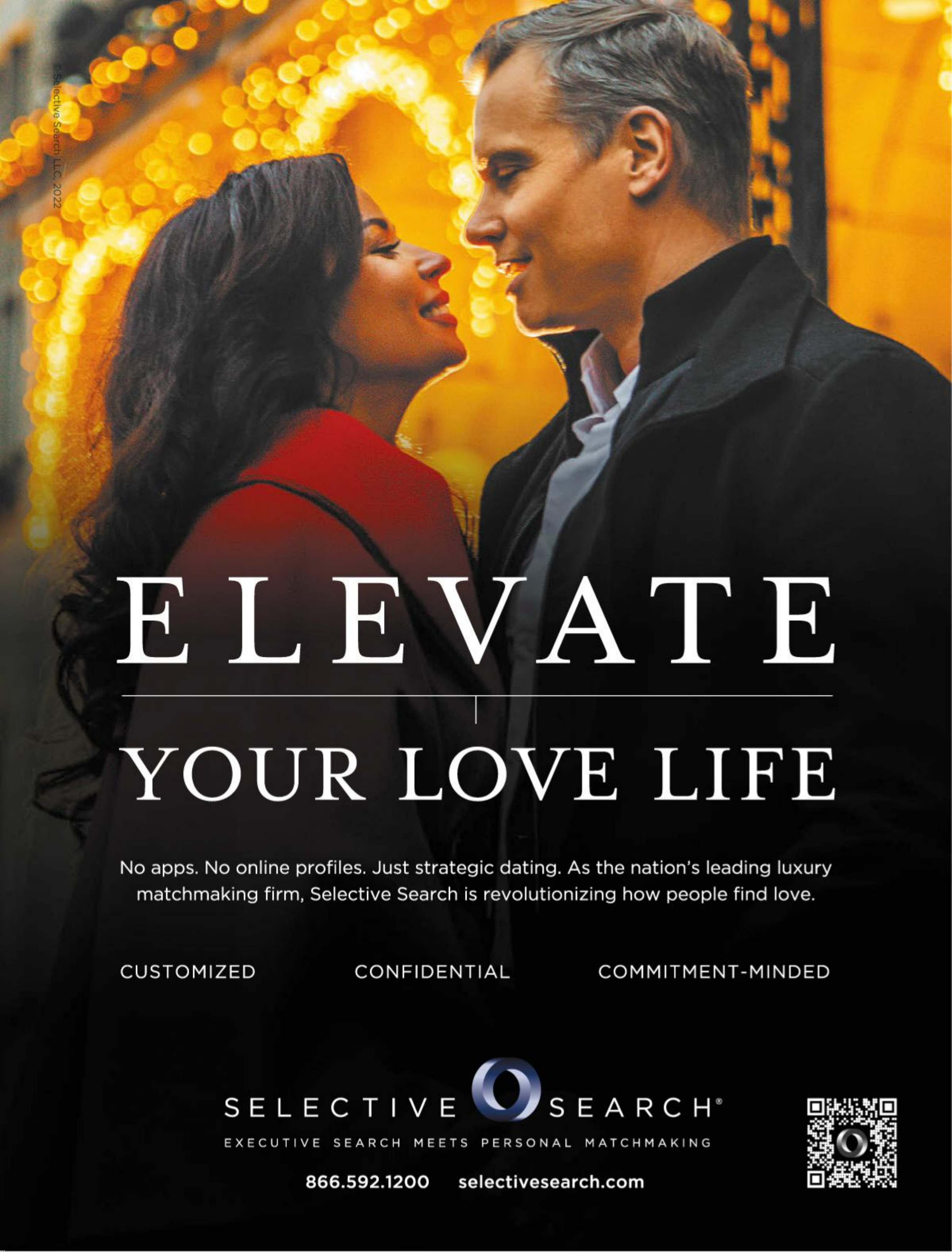
Trick or treatment?

Amy's view is not surprising. China's health-care system, and the ability of its health-care institutions to respond to emergencies such as covid, are still saddled with many of the same problems that were evident during SARS. In 2017 the government stopped allowing hospitals to sell essential drugs at a mark-up as a way of generating revenue—a practice that had been causing huge public resentment. But hospitals still find other ways to make money, such as by prescribing unnecessary treatments, including expensive in-patient care. To attract customers they buy shiny, imported MRI scanners and other diagnostic tools, and charge patients steep prices for tests, as less glamorous but important areas of care are neglected.

Since 2001, thanks to the government's insurance schemes, out-of-pocket payments for health care have dropped from about 60% of households' health spending to 30%, according to "Healthy China", a report in 2019 by the WHO, the World Bank and the Chinese government. But this was still higher than the average of about 20% in the OECD, a club of rich countries.

The profit motive in hospitals has created a blizzard of distortions. One is evident in the country's shortage of intensive-care beds, a problem that will worsen as serious cases of covid rise. Before the pandemic, hospitals had pondered their worth. Why spend money on installing them and training specialist staff when a far steadier stream of revenue could be created by focusing on the predictable needs of patients with non-communicable diseases, such as cancer and heart ailments? These are fast-growing as the population ages, lifestyles change and pollution undermines health.

In early December the government ordered hospitals to ensure their critical-care beds were ready for use by covid patients, including beds earmarked for other kinds of illnesses. This month the government said there were now about ten per


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100,000 people—a big increase from recent official figures of about four.

But *The Economist*'s modelling suggests that is still only about one-third of the number that may be needed to cope with the covid wave (see chart 2 on previous page). A paucity of intensive-care capacity had been one of the main reasons for maintaining a zero-covid policy. Ramping it up now will not be helped by a chronic shortage of nurses with the necessary skills. Those who suffer most from the critical-care deficit will be people living in places other than the biggest cities, where the fanciest hospitals are concentrated. In the countryside many village "doctors" do not even have a university degree.

The government is clearly aware of the problem. Its latest health-reform plan, published in 2016, stresses the need for an effective primary-care system. It has spent billions of dollars on beefing up community-level facilities. But recruiting talent for the medical profession is hard enough—salaries are relatively low, as is public respect for doctors. Violence against medical staff is common, often triggered by high prices for their services. Persuading doctors to work in general practice outside hospitals is even tougher. With fewer expensive facilities and medicines at their disposal, community GPs have less opportunity to augment their salaries.

Neither they, nor doctors in hospitals, have much incentive to make the system work better. Ideally, primary-care facilities should refer people in need of special care to hospitals, which in turn should send patients back for routine follow-up treatment. But referrals can deprive those making them of customers, and doctors are reluctant to lose business. George Liu of La Trobe University in Melbourne notes that the volume of care delivered by community health workers in China has increased in the past decade, but their share of the total has declined. "That's because they are still competing with hospitals," he says.

As covid cases rise and local governments scramble to beef up primary-care facilities to divert patients from overstretched hospitals, some see a glimmer of hope. On WeChat, *Health News*, the health ministry's mouthpiece, said the shift of attention to community clinics had created an "opportunity". Their fever departments should become a permanent feature, not just a covid-related one, it suggested, so that people with high temperatures would no longer feel a need to go to hospital.

It is astonishing that China, a country that has hosted two Olympic games and boasts of landing spaceships on the Moon, is still debating how to build community health clinics that patients trust and want to use. If the covid pandemic can accelerate long-needed change, some of the suffering it is causing will not have been in vain. ■

Bertrand Russell on China

Way back when

BEIJING

A great sage and his century-old look at China

UPON ARRIVING in China in 1920 Bertrand Russell, a British philosopher, was overwhelmed at the welcome he received. "They hail me as the second Confucius, and invite me to tell them exactly what they are to do with their country," he wrote to a paramour. "It is a terrible responsibility."

Still, Russell took up the challenge. After a sojourn lasting nearly ten months, he returned to England and in 1922 published a book called "The Problem of China". It remains relevant a century later, offering enough wisdom to offset its occasional lapses into folly.

Russell's observations are at times prescient. He described, for example, how "the most urgent problem in China's relations with foreign powers is Japanese aggression." He also noted that Russia's Bolsheviks enjoyed "the enthusiastic sympathy of the younger Chinese students" and might gain wider appeal.

One young person whom Russell met during his stay was Mao Zedong. The future Communist leader's name does not appear in the book. But Russell declared that "a vigorous reformer possessed of literary skill could carry with him the great majority of Young China."

Russell thought China was being held back by Confucianism's emphasis on filial piety, which, he argued, led to corruption and "prevented the growth of public spirit". He foresaw a booming Chinese textile sector, with the potential to be "as great as that of Lancashire". He thought that contact with the West would help China's industrial development, which he expected to "proceed rapidly throughout the next few decades". But he warned China that "development should be controlled by the Chinese rather than by foreign nations."

Critics knock Russell for failing to spend much time in the countryside and holding China to different standards from other countries. Some of his observations are quaint, such as his description of Shanghai as "a vast city, about the size of Glasgow". Others are cringeworthy, such as his view of the Chinese as "gentle, urbane, seeking only justice and freedom". Compared with "white races", they have "much less desire…to tyrannise over other people," he wrote. Tibetans and Uyghurs might disagree.

"I don't think I shall write on China. It is a complex country, with an old civilisation," Russell stated in correspondence, before changing his mind. In his letters he often sounds like a detractor. In one, for example, he describes China as "decaying and rotten, like the late Roman Empire". He also gripes that "most of the students are stupid and timid," whereas in the book he calls them "able and extraordinarily keen".

"The Problem of China" was widely read in the country and praised for its largely positive assessment. (It is still available there today.) Russell believed that China, with its resources, population and patriotic spirit, could become "the greatest Power in the world after the United States". But he also offered a warning: "The danger of patriotism is that, as soon as it has proved strong enough for successful defence, it is apt to turn to foreign aggression."



Just like Glasgow

HOLIDAY SPECIALS

DECEMBER 24TH 2022—JANUARY 6TH 2023

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THE BADUY

TIME LORDS

KANEKES

In a corner of Java live the Amish of Indonesia. More and more are leaving the past behind

It was just another day in Kanekes when Herman Jarkan (pictured) was struck by an epiphany. He was rushing home after the weekly shop one afternoon in May 2014. On his shoulders was balanced a baton of wood, on either end of which hung two big knapsacks laden with rice, cooking oil and salted fish. His bare feet gripped the cobblestones of the path which meandered up hills and through forests.

The walk afforded him time to think. His thoughts often drifted back to the question that had nagged away at him for years: should he leave his village and family to seek a better life on the frontier?

The arguments for and against were as well trodden as the path under his feet. His village contained his world. That was by design. His people had always shunned modernity. But he had travelled to the big cities in the Outside and marvelled: people there lived in buildings that scraped the sky and drove machines many times faster than the fastest man. That world tantalised him. He wanted to be closer to it. But he had to be sure. Once he left, he could never move back.

Over the years Mr Herman had learned to dismiss those thoughts. But today was different. "If I don't leave now, I never will," he realised. So he decided to go. It felt as if a weight had lifted from his shoulders.

Kanekes is a mere three-hour drive from Jakarta, Indonesia's heaving capital, but it feels a world apart. Gone are the high-rises, the pell-mell traffic and the throngs of people. In their place is the forest: the ancient trees standing sentry, the flashy green moss carpeting the rot, and amid the slick humus, paths leading to the terraced bamboo houses of the Baduy.

The Baduy have lived in this corner of western Java

The Baduy are a people trapped in amber

for centuries. They are an example of what Indonesians call *masyarakat adat*, ethnic groups who live according to their traditions. Life revolves around their religion. They believe that their forest is the wellspring of the universe and that they are its divinely appointed guardians. To protect the land, they must "follow whatever our ancestors did in order to live in harmony with nature," says Sangsang, a Baduy official who, like many Indonesians, goes by only one name.

The Baduy, who are subsistence farmers, live by a rigid set of rules. They are not allowed to irrigate their fields, use chemical fertilisers and pesticides, or plant crops that harm the land's fertility. To defend the land, they must be ritually pure. Modernity is a byword for moral corruption. Electricity is banned; so are radio, television and mobile phones, as well as the use of modern vehicles. They cannot wear shoes or long trousers. Toilets are forbidden.

Like the Amish of America, the Baduy are a people trapped in amber. A 16th-century Dutch etching of two Baduy men could be a modern-day portrait. And yet, on the outskirts of Kanekes, an acid-rain drizzle of modernity is slowly dissolving the amber.

The Baduy are divided into two castes: Inner Baduy, who number about 900, and the 15,000 Outer Baduy, who live in a horseshoe of land encircling the sacred southern core of Kanekes. The Outers are freer. They may travel in modern vehicles and can get away with wearing shoes. But they are still not allowed to drive, and can charge their phones only in the outside world. As a result, they seem to straddle the past and present.

For centuries, the people of the interior have relied on Outer Baduy to serve as a bulwark against modernity. The latter handle emissaries from the outside world: the local government and tourists. That leaves the hermits of the inner sanctum at liberty to pursue their asceticism. As Mr Sangsang says, "Inner Baduy are higher in status" precisely because they have less to do with the wider world than their neighbours.

This hierarchy is woven into the fabric of everyday life, in the colour of their clothes (black and blue for Outers, black and white for Inners); in the walls of their bamboo houses (patterns are permitted only for Outers); and in the deference Outers show Inners.

This difference is also mapped onto the land. The Inners and Outers are separated geographically. Because they are pure of heart, Inners may live among their sacred sites; Outers must live farther away. The Indonesian government manages Outer Kanekes while the interior is governed by Baduy spiritual leaders. "For Inner Baduy villages, this is where the government stops," says Jaro Saeja, the headman of the Outer Baduy, pointing at his house. The two groups may visit each other but for no longer than two nights.

There is, however, an exception to this commandment. Inners convicted of committing the worst sins, such as adultery or driving a car, are banished to Outer Kanekes for several months. The punishment captures the vexed attitude Inners have towards Outers: the former are grateful for the way the outer villages repel the wider world. And yet it is a service that must, through contact with that world, blemish their souls.

Despite the frontier's association with sin, a growing number of Inners are migrating to Outer Kanekes. Many who move had previously been banished there. At the end of their exile, the authorities of the interior ask whether they want to go home or stay in the outer ring. "Most say 'I will stay,'" says Mr Sangsang. He estimates that ten Baduy—about 1% of the population of the inner core—move to the frontier every year. They move, he says, because of the lure of the modern. The authorities do not stand in their way. But it is not an easy decision.

NO GOING BACK

Mr Herman sits cross-legged in a hut near one of his fields, about a five-minute drive from his home in Outer Baduy. He pulls out one of two phones ("one for business, one for personal use") and shows off a picture of himself and two Baduy friends in Jakarta. It was taken by a professional photographer—one of Mr Herman's good friends, he says.

Mr Herman first left Kanekes when he was 13. He was helping his father, who made handicrafts for tourists, deliver a large order to a customer in Jakarta. To get there they walked, barefoot, for two days. When they arrived, Mr Herman saw skyscrapers and pylons. He saw the tiny figures of labourers high up in the frame of a building they were erecting, and a crane delivering metal girders to them. How did they get so

↓ *Herman Jarkan and his wife; an Outer Baduy village*









↑ *Mr Herman when he belonged to the Inner Baduy; his house in Outer Kanekes*

high up, he wondered. How did they communicate with the crane operator? "I was astonished," he says.

He began to spend more time in Outer Kanekes. Picking up odd jobs there, he met tourists who taught him some Indonesian. "I wanted to make friends from the outside world," he recalls.

Outer Kanekes was nowhere near as alien as Jakarta but it was different in its own way. The Outers had it much easier than the Inners, Mr Herman thought. To construct their houses, they could use saws. Inners had to use axes and machetes—bulky, tiring tools. In the time that it took Inners to walk from the interior to the exterior, Outers could travel by bus or train to Jakarta. He began to dream of leaving.

Life got in the way. Mr Herman got married, had children, tended the fields. The prospect of leaving his parents pained him. He did not know how he would support himself in Outer Kanekes. "In the interior, you manage together," says Jamidi, Mr Herman's nephew, who was banished to the exterior in July 2022. Land is owned and tended communally. By contrast, in the exterior, says Mr Jamidi, "Everything is money."

But Mr Herman continued to explore, visiting his friends in Jakarta a few times a year. They showed him how to order a taxi on a mobile phone and took him to fancy restaurants, where he had to explain his bare feet to bemused security guards. Those trips stirred a longing for adventure and agency. "I wanted to try things I'm not allowed to do," he says. "I wanted to try to be more free."

That afternoon in 2014, when Mr Herman returned home from the market, he told his wife of his decision. He yearned for the freedoms of Outer Kanekes—but it was the growing hardship of life in the interior that clinched his decision. As the population of Inners has grown, the land allotted to every family has shrunk with each generation. Mr Herman's parents were apportioned one hectare of land; Mr Herman received just half that.

Things would be different in the exterior, he reckoned. He would be able to buy land and sell surplus produce to a much bigger market. More tourists come to Outer Kanekes than to the interior (where foreigners are banned), plus he would be able to use a mobile phone to advertise and sell his wares to consumers online. "I thought, 'Of all five of us [his parents and siblings], one of us can't be poor, one of us has to progress.' That was how I got the courage to go out."

One month later, Mr Herman and his family left Inner Kanekes. At last the dream that he had nurtured for 25 years had come true. Yet, far from celebrating, Mr Herman was consumed with anxiety. He did not have a job and he could hardly afford to feed his family. His worries kept him up at night. So, too, did homesickness for life and his family in the interior.

LIMINAL SPACE

Eight years later, Mr Herman's life is transformed. He owns four plots of land, on which he grows bananas, durian, stink beans and timber. He sells his produce online. He is prosperous, and was able to buy a house for his newly married son. It took his parents a year to make their peace with his decision to leave, but now they are pleased for him, he says.

In many respects, Mr Herman is the picture of a modern Indonesian. He distracts his one-year-old son with cartoons on his smartphone. When he is not working the fields, he lives on his phone, just like any other social-media obsessed millennial. He thinks in terms of profit and loss, not virtue and vice—which is just as well given that he wears flip-flops and has a solar panel affixed to his thatched roof, breaking the prohibitions against shoes and electricity.

His new life is not without hardship. The individualism of the Outer Baduy cleared the path for Mr Herman to remake himself into an entrepreneur—but it comes with penury, too—a sense of alienation from his culture. He has discouraged his siblings from following him to the exterior, in part so they can look after their parents, but also to spare them "the difficult hardships I had to endure" in Outer Kanekes.

Mr Herman does not regret his move: "I am really happy with my life." He says that he does not chafe against the rules of the Outer Baduy as he did back in the interior. "If we give in to all our desires, it's never ending. As long as I have enough to feed and attend to my family's needs, I am content." But every year a small but growing number of Outers heed those desires and abandon Kanekes altogether. Modernity is rushing in. There is no going back. ■

Population ethics

All uncreated men are equal

Should we care about people who need never exist?

In 1852 the HMS *Birkenhead*, carrying troops to fight the Xhosa wars, struck a rock near Danger Point in what is now South Africa. The soldiers assembled quietly at the ship's stern, while the women and children on board clambered to safety on a small boat tethered alongside. Over 440 men lost their lives, drowned, crushed, or eaten by sharks.

Saving women and children first became known as the Birkenhead drill. It was invoked on the *Titanic* and celebrated as an unwritten law of the sea. To many at the time, its rationale seemed self-evident. Women and children were "naturally more helpless", as a journalist put it. On the *Titanic*, one fashionable woman lamented that she was a "prisoner in my own skirt", unable even to jump into a lifeboat without assistance.

Some have, however, suggested a deeper justification for the drill, rooted in safeguarding the future of a society. Some of the *Titanic* survivors went on to have children. Madeleine Astor remarried and had two sons with her new husband. (One of them would describe himself as a "most lucky man", acknowledging that his mother's good fortune was also his own.) Leah Aks later gave birth to a daughter and second son. Her great-granddaughter, a flautist, has taught a class about the *Titanic* at the University of Tennessee. In rescuing over 700 souls from the icy deep, the lifeboats of the *Titanic* also, in a sense, "saved" the additional lives these survivors went on to create, salvaging them from the deeper abyss of non-existence.

A growing band of philosophers, and a smaller



number of economists, have wondered how to value these sorts of lives—lives which did not exist at the time of the rescue, but which could not have existed without it. Their inquiries fall within a field known as "population ethics", which was invented in its modern form by Derek Parfit, a British philosopher, in the 1970s. Economists routinely ask how a policy or regulation affects people's well-being. But often a policy does not merely benefit or harm a population, it helps to create it, changing the number and identity of the people in question. In these cases, an analyst cannot simply compare the lives of a given population with and without the policy. Their task is trickier than that, because the group of people that exists with the policy will be different from the one that exists without it.

The questions posed by population ethics range from the intimate to the cosmic. Should a couple have a child—and should the government pay for any fertility treatment? Should humankind seek to colonise other planets to increase its potential size and lifespan beyond Earth's limits? Somewhere in between are the policy questions posed by climate change, which would be less vexing if humanity was less extensive. In a paper published in 2017, Noah Scovronick of Princeton University and his co-authors calculated the cost of preventing temperatures rising by more than two degrees above pre-industrial levels. With a population of 9.7bn in 2050, the annual cost of emissions curbs would increase to $481 per person. With a smaller population of 8.7bn, the cost would drop to $471. The second option is cheaper. The first has more people in it. How should the two be ranked and evaluated?

Before making that call, any analyst would need more practical details. They would want to know how the smaller population could be achieved, for example: could it be done while respecting everyone's reproductive rights? But they would also need to answer a philosophical conundrum: what weight to place on the 1bn or so people who would exist in one scenario but not the other?

After the *Titanic* disaster, an official inquiry concluded that ships should carry more lifeboats, despite the expense. Similar calculations have become a routine part of economics, estimating how much societies should spend on reducing other risks, such as road accidents. These estimates do not shy away from putting a dollar value on saving a life. They might, for example, infer the value from the amount of extra pay people demand to work in dangerous jobs. But it is vanishingly rare for these calculations to acknowledge that saving someone's life might also make it possible for their descendants to live too.

The exceptions prove the rule. In 1981 W. Brian Arthur, then at the International Institute for Applied Systems Analysis in Austria, compared the cost to society of different kinds of death. On plausible assumptions, saving someone from a motor accident was worth 2.5-4 times as much as sparing someone from cancer. Road victims tend to be younger so they had more years of life ahead of them. They also had more kids ahead of them. For every 100 people killed by cancer, the world also loses the two children these cancer victims might have had. For every 100 people killed on the road, society loses 32 potential children.

Saving the young from untimely death is not the only way for governments to influence the number of people who come into existence. Policies on family planning, parental leave and subsidised child care can affect fertility rates fairly directly. Many other policies do so indirectly and often inadvertently.

The questions posed by population ethics range from the intimate to the cosmic

High house prices, for example, make it harder for young people to start a family. The expense can also stop small families becoming larger. One study found that a hypothetical increase in unemployment by ten percentage points in Europe would reduce the number of children per 100 women by nine. Increasing women's education can delay childbearing. It can also make women more employable, so that staying at home to raise kids entails a bigger economic sacrifice. In China, the long fight against covid-19 has coincided with a sharp decline in the number of marriages and births. Scholars blame the economic uncertainty and the strains of managing a household under lockdown. Almost every big economic policy is also de facto a population policy, because it will reshape the prospects of people who could still have children.

For what it's worth

All of this raises practical as well as philosophical questions. When deciding how much to spend to save people from shipwrecks or road accidents, should their potential offspring count? If some people are never born because of a government decision—a tightening of planning regulations that raises the price of homes, a hike in interest rates that spreads unease and unemployment, or a pandemic-related lockdown that keeps Cupid's arrow in its quiver—should their non-existence count against the policy?

The usual answer is no. The life of your potential offspring "has never been counted as part of the value of saving your life," notes John Broome, a moral philosopher at Oxford. These lives can go uncounted even when they are the point of a policy. In justifying the public provision of infertility treatment, Britain's clinical guidelines dwell on the treatment's benefits for the mother. But they decline to consider the value of the child that might result. The same reticence applies even to much bigger changes in population. Climate change, for example, will change how and where people live, all of which will presumably influence the size of the future population. But "in all the very extensive writings on the harm of global warming, I have never seen the effect on population mentioned among the harms or benefits," wrote Mr Broome in 2001. (He later served on a working group for the International Panel on Climate Change.)

The reason for this silence, he went on to say, is obvious. "The people who do these valuations take it for granted that changes in population are not, in themselves, good or bad. They assume they are ethically neutral." Policymakers do, of course, worry about the impact of extra people (or fewer) on everyone else. They worry about the environmental strains of over-population and the fiscal strains of demographic decline. But many are neutral about the change in population in itself. Even if they could be assured that an extra 1bn people would not overcrowd the planet and clog the atmosphere, many would view the existence of this additional multitude as neither good nor bad.

This stance is common, convenient and often compelling. The intuition behind it was best captured by Jan Narveson, a Canadian philosopher, in 1973. "We are in favour of making people happy," he wrote, "but neutral about making happy people."

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This intuition of neutrality is perhaps most appealing when applied to a family's decision whether or not to have children. That decision will have all sorts of profound effects on others, most notably the parents. But setting those aside, does a couple's choice make the world better or worse? Neither, argues Mr Narveson. As a result, "there is nothing immoral, or even slightly unbenevolent, about having no children when one could have had them." This is true, he argues, even if the children would probably have flourished.

You might object that the never-born child has lost out in some way. Their non-existence is worse for them than the life they could have led. But that is a metaphysical mistake, Mr Broome points out: if they never exist, there is no "them" for it to be worse for.

This argument is not confined to modern philosophy. Lucretius, a Roman poet, made the same point in verse 2,000 years ago:

"What loss were ours, if we had known not birth?
...whoso ne'er hath tasted life's desire
Unborn, impersonal, can feel no dearth.

Poetically appealing, the intuition is also politically convenient. It allows policymakers and analysts to give little weight or even thought to the additional people who might come into the world as a result of their policies, whether they be improving road safety, reducing home prices or curtailing lockdowns. The 32 kids who might result from saving 100 young motorists' lives do not factor into the road-safety budget. The child who might result from infertility treatment does not feature in the calculation of that treatment's costs and benefits. People who would not exist without a decision cannot sway that decision.

Because of the intuition's appeal, Mr Broome went to considerable philosophical lengths to preserve it in the preparation of his book "Weighing Lives". But at last he "grudgingly concluded" that it had "to be abandoned". Many other philosophers have reached the same position. They include Parfit before him and more recently, William MacAskill, who became an intellectual celebrity in 2022 with his book "What We Owe the Future". Mr MacAskill was one of Mr Broome's doctoral students, and his book describes a similar intellectual journey away from the neutrality intuition.

Making happy unicorns is a matter of moral indifference only as long as someone is doing it

Such journeys typically pass through several stations. One obvious objection to neutrality is the threat of extinction. If one couple refuses to have a child, it is neither good nor bad. But if every couple refuses, it is a catastrophe. A recent *New Yorker* cartoon depicts Noah's ark. Amid the pairs of monkeys, elephants and giraffes, one unicorn says to the other, "I just don't think I want kids." Making happy unicorns is a matter of moral indifference only as long as someone is doing it.

NEVER WAS I EVER

Critics of the neutrality principle point out its awkward asymmetry. It applies to happy people but not to those who would be horribly unhappy. Parfit imagined a "wretched" child, "so multiply diseased that his life will be worse than nothing". It would be wrong to bring such children into the world, Mr Narveson conceded.

But this creates a moral dilemma. Everyone who gives birth takes an ethical gamble. They hope to bring a happy child into the world. But there is always a chance the child will suffer horribly, perhaps because of a rare birth defect or later accident or illness. Thus in order to do something morally neutral, they run the risk of doing something morally regrettable.

Even when applied to "non-wretched" lives, the intuition of neutrality runs into logical difficulties. By placing no weight on potential populations, whatever their size and degree of contentment, neutrality makes it hard to weigh them against each other. The ethical scales give the same "neutral" reading for all of them, regardless of whether they are large or small, happy indeed or merely happy enough.

In his book, Mr MacAskill imagines a would-be mother deciding whether to have a child. She is suffering from a temporary vitamin deficiency, which means that if she conceives now, her child will suffer headaches later in life. If she waits, her child will not.

The scales are neutral about making a happy child with occasional migraines. And they are neutral, too, about making a happy child without. They give the same ethical reading, even though one of those choices seems intuitively better than the other. In failing to distinguish either of these scenarios from the childless status quo, the scales also fail to distinguish them from each other.

Difficulties of this kind have prompted philosophers like Parfit and Broome to look for a moral reason, and a workable method, for weighing potential people. Parfit was wary of saying that existence is better for a person than non-existence (since in the latter scenario, there is no person). But even if causing someone to exist is not "better" for a person than the alternative, it might still be "good" for them, Parfit argued in his book "Reasons and Persons". He quoted another philosopher, Thomas Nagel. "All of us...are fortunate to have been born. But...it cannot be said that not to have been is a misfortune."

If causing someone to exist is good for them, that good can be placed on the ethical scales. By bearing a child, the mother in Mr MacAskill's example benefits that child. If she waits, she heaps a larger benefit on the child without headaches than she would have conferred on the different, earlier child with headaches.

What philosophers call an "impersonal view" is also possible. In ranking futures, a decision-maker may decide that one world is better than another, even if it is not better for anyone who exists in both. The children who could exist in Mr MacAskill's example would have lives worth living. Such lives are good things. A world with them is better than one without.

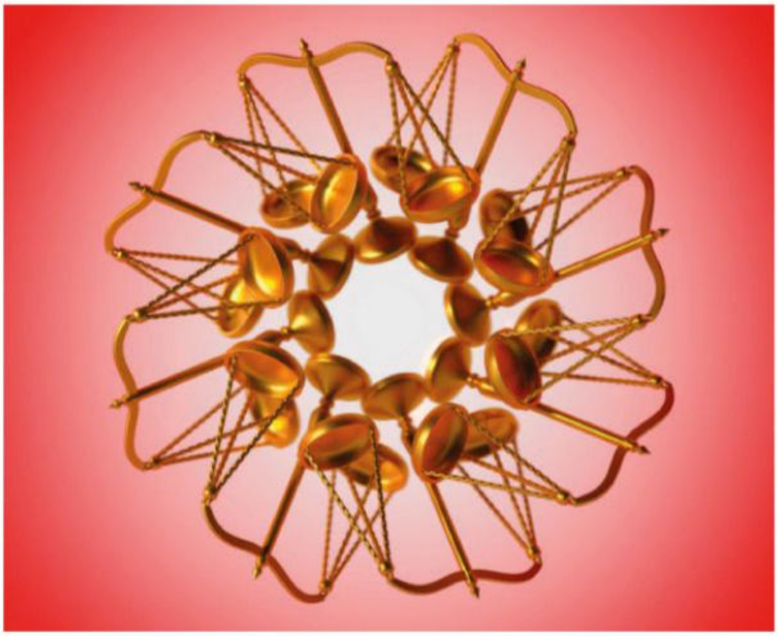
From an impersonal vantage point, people who merely could exist should be weighed alongside those who do or will. This view of potential people has potentially stark implications for everyone else. If adding a (sufficiently) happy person to the world makes that world better, then it might be worth adding them, even if it requires some sacrifice on the part of others. A bigger, worse-off population could be morally preferable to a smaller, better-off one. A world with 9.7bn people paying $481 per year to fight carbon emissions might be better than a world with fewer people paying less.

On a planet that already feels overstretched that is not an obviously appealing position. But the same philosophical logic can be recast as a radically green argument. Imagine the world reaches a point of great environmental precariousness, such that every cut in pollution today allows humanity to survive just a little longer. By living less well ourselves, we can, in effect, add another generation to the lifespan of our species. If our children also tighten their belts, they can add a further generation. And the same is true of their offspring, too. In this way, humanity might curtail the quality of life to increase the quantity of life, as it extends over time.

The problem is where do you stop? When couched in these terms, even savage cuts in the quality of life could be justified by a sufficient increase in the quantity. We might be forced to conclude that a threadbare world is better than a comfortable one if enough extra people get to experience it.

This is one version of what Parfit dubbed the "repugnant conclusion". He imagined a world where people had lives that were barely worth living (a life of "muzak and potatoes" as he put it). If the population was sufficiently large (and in a philosophical thought experiment, the only limit on a population's size is the philosopher's imagination) such a world could be morally preferable to one where a smaller population enjoyed lives of joy and abundance.

The fear of large populations of low-quality lives has overshadowed the field of population ethics



It is a deeply unappealing conclusion. It troubled Parfit for the rest of his life and remains one of the "cardinal challenges of modern ethics", according to Gustaf Arrhenius of the Institute for Futures Studies. It is one reason why some philosophers still tenaciously defend the neutrality intuition.

Mr Broome thinks it can be avoided by properly calibrating the scales, changing what counts as a borderline life. Parfit imagined it as a life that is only just worth living for the person living it. For Mr Broome the borderline is a life that is only just worth adding to the world, from an impersonal viewpoint. If lives of muzak and potatoes do not make the world better, if they are repugnant, then by definition they fall below this line. And so only happier potential lives would have positive value on a properly calibrated scale.

THE SUM OF ALL FEARS

But even if this calibration deflects the repugnant conclusion, it has other off-putting implications. As Mr Arrhenius has pointed out, it might favour a world of hellish lives over another world where many more people lead slightly negative lives just below Mr Broome's borderline. Indeed, the repugnant conclusion and its variants are fiendishly difficult to avoid. They pop up in many fields of ethics and in many guises. Viewed from a certain angle, Parfit's conundrum is not that different from the more familiar dilemma of whether to help a lot of people a little, or a few people a lot, as Dean Spears of the University of Texas, Austin, and his co-authors have pointed out.

Something like the repugnant conclusion can arise whenever a moral calculation requires adding up things with no obvious upper limit, be they people, pleasures or pains. Tyler Cowen of George Mason university has likened the repugnant conclusion to Pascal's wager: if heaven is infinitely blissful, people should sacrifice almost everything to improve their odds of admission by even a fraction. That too is a repugnant thought. And it arises because there is no upper limit on the joys of heaven, just as there is no upper limit on the population in Parfit's imagination.

The ubiquity of the repugnant conclusion and its ilk could be paralysing. But Mr Spears and Mark Budolfson of Rutgers University instead find it liberating. "If the repugnant conclusion is unavoidable, then we should not try to avoid it." If a theory makes sense of practical cases, it should not be tossed out merely because it has counterintuitive implications when applied to imaginary scenarios that involve limitless summations of hypothetical people.

In 2021 Mr Spears and Mr Budolfson published a short paper with 27 other scholars (including most of those named in this story). It tried not to solve the repugnant conclusion but to disarm it. It stated their shared view that the repugnant conclusion was not as fatal as it seemed. "The fact that an approach to population ethics…entails the Repugnant Conclusion is not sufficient to conclude that the approach is inadequate," they wrote. The fear of large populations of low-quality lives has overshadowed the field of population ethics. Perhaps an unusually large population of high-quality authors can dispel it. ■

OIL AND RUBBER

The two Brazilian booms that bookmark the history of the car

MACAÉ AND MANAUS

What Brazil's 19th-century rubber crash could teach today's oil drillers



ONE OF THE mysteries of the Amazonas theatre concerns courtesans. Legend has it that in the 19th century the corridors under this great pink opera house in the rainforest were used to smuggle in sex workers during performances, to liven up "The Magic Flute" for rubber barons in their private boxes.

This legend may or may not be true, says Sigrid Cetraro, the modern-day director of the Amazonas. What is certain is that the opera house in Manaus, which opened in 1896, is a blingtastic testament to the excesses of Brazil's rubber boom of 1879-1912.

Nearly all the building materials were imported from Europe: steel from Glasgow, roof tiles from Alsace, marble from Tuscany. The auditorium is shaped like a lyre; the chandeliers are of Venetian glass. Look up at the ceiling and you appear to be under the Eiffel Tower. "The governor [at the time] wanted to show off to the world the riches that were coming from the Amazon," says Ms Cetraro. Her voice carries easily across the stalls—the acoustics are splendid.

After Charles Goodyear invented vulcanisation in 1839, global demand for rubber exploded. Suddenly latex, the milky fluid that seeps out of rubber trees, could be turned into a durable yet stretchy material, ideal for use in valves, raincoats, condoms and, most of all, tyres, first for bicycles and ultimately for cars. (It was also used on the road outside the opera house in Manaus, to muffle the clatter of carriage-wheels.)

For most of the 19th century nearly all of the world's rubber came from Brazil, home of *Hevea brasiliensis*, the Pará rubber tree. Manaus, a city reachable only by sailing 1,450km up the Amazon, became the great rubber hub. The profits brought the city trams, running water and electricity. The biggest rubber traders dreamed up ever wilder means of ostentation. Manaus became the world's largest market for diamonds. Tycoons reportedly sent their laundry to Lisbon.

The story of Brazil's rubber boom is one of profligacy and cruelty, of hubris and nemesis. The planters made easy fortunes from nature's bounty and bonded labour. They spent their cash on conspicuous consumption, and failed to invest in better technology. After a few decades, they were undercut by cheaper producers in Asia, and the boom turned to crash.

This fascinating era has a modern parallel. Now, as then, Brazil is enjoying a windfall thanks to nature and the world's demand for cars: an offshore oil boom. It, too, could end in tears. Your correspondent visited Manaus, the old rubber capital, and Macaé, the modern oil capital, to see what can be learned from two Brazilian booms that bookmark the history of the car.

First stop is the Museu do Seringal (rubber-tapping museum), which is reachable by river from Manaus. Our boat heads upstream, and turns into creeks that grow steadily narrower, with the jungle pressing in from both sides. Finally, we make landfall at a clearing with a big wooden house, a replica 19th-century general store and all the crude technology that tappers once used to extract rubber from trees.

It was gruelling work. A *seringueiro* would set off after midnight, when the temperature was cool enough for the rubber to flow, and make a long round of his rubber trees. At each one, he cut a diagonal channel in the bark and attached a cup at the bottom to catch the latex that seeped out. His only light was a paraffin lamp strapped to his head. His nightly circuit was several kilometres long. The rubber trees grew

where nature planted them, and a typical tapper would have to tap 100-200 each night.

When the *seringueiro*'s cups were full, he headed for the smokehouse. This was a cramped wooden lean-to. Inside, over an open fire, he would heat up the latex and wind it around a stick until he had a lump the size of a football. He would then trade it for a reduction of his debt. Most rubber-tappers never saw cash. They bought their food and kit from the boss's store: cutting tools, lamps, grain—and booze, to foster dependency. Prices were steep; tappers could not shop anywhere else, and were forbidden from fishing or hunting. When they handed over the bouncy fruits of their labour, their debts shrank a bit—but seldom to zero, not least because the boss would typically charge a 50% commission to ship the rubber to Manaus. The boss lived well—in a big house with imported furniture, mirrors and wine decanters.

In a small wooden church by the store, workers could seek spiritual solace. Sometimes, says Gabriel Leao, a museum guide, the "priest" hearing confessions was in fact a stooge, who reported the men's transgressions back to the boss, who could then punish them "like slaves", with beatings or whippings.

Enrique de Souza, a leathery man in his 80s, worked as a rubber-tapper from the age of eight, when vestiges of the old system still survived. "I never saw money till I was 18," he recalls, sitting on a porch at the museum. "Everything we produced was paid for in credit or in goods." He toiled from 1am to 8pm, and lived in a small tent. If his working life was harsh, his father's and his grandfather's were harsher. "They used to tell me how cruel their bosses were," says Mr de Souza. For serious offences, such as damaging the rubber trees, the overseers might "tie a man to a tree and leave him out in the sun for two or three days".

Euclides da Cunha, a Brazilian journalist, called the Amazonian rubber trade "the most criminal employment organisation ever spawned". However, many tappers were not passive victims, argues Barbara Weinstein in "The Amazon Rubber Boom, 1850-1920". Many flouted rules against fishing or selling their rubber to itinerant traders. Many fought back against abusive bosses by mixing stones or sand into their big rubber balls to inflate the weight. Even debt bondage was looser than it seemed. A tapper could simply disappear into the rainforest, taking with him the supplies his boss had advanced him on credit, and never return. The fact that workers could leave forced even the most heartless bosses to temper their cruelty somewhat.

RUBBER ROBBER

The profits from rubber were vast. It became Brazil's second-largest export, after coffee. But the boom "proved both short-lived and superficial", notes Ms Weinstein. In 1876 a British adventurer, Henry Wickham, smuggled 70,000 rubber-tree seeds out of Brazil. He delivered them to the Royal Botanic Gardens in London, which bred plants that were ultimately used to break the Brazilian rubber monopoly.

The descendants of Wickham's seeds were sown in neat rows in Asia. British and Dutch plantations in Malaya and Sumatra proved far more productive than the Brazilian jungle, since there were fewer natural parasites and rubber trees could be planted close together without transmitting rubber-blighting insects and fungi to each other. In 1912 Malaya and Sumatra yielded



8,500 tonnes of latex, a quarter as much as the Amazon. Nine years later, it was 370,000 tonnes.

Brazil's rubber economy imploded. Manaus withered. Its power generators seized up. The opera house was shuttered and "ridiculed as an emblem of folly", notes Greg Grandin in "Fordlandia: the Rise and Fall of Henry Ford's Forgotten Jungle City".

As Mr Grandin describes in his book, the founder of the Ford motor company created an odd postscript to the boom. In 1927, eager to secure rubber for the tyres of his Model Ts, Henry Ford bought a concession to a tract of the Brazilian Amazon the size of Tennessee. He thought that with his deep pockets, his management skills and American know-how, he would swiftly tame the forest and turn a profit. "A new and titanic fight between nature and modern man is beginning," gushed a German newspaper. Many Brazilians expected Ford, the richest man in the world, to win. He lost.

He tried to recreate a slice of the Midwest in the Amazon. Fordlandia (Fordville) had Michigan-style homes (which were too hot), movie theatres and square dancing. Clearing the jungle was hard, and met local opposition. When the firm wanted to bulldoze villages, it offered to compensate only homeowners with title deeds, which hardly anyone had. Some workers showed up hoping to pocket the famously generous $5-a-day wages that Ford paid in Michigan, and drifted away when they were paid only 35 cents.

Alcohol was legal in Brazil, but Ford banned it and had workers' quarters searched for surreptitious bottles. He was also a food crank, who insisted that staff eat oatmeal, tinned peaches and whole-wheat bread. In 1930 workers sick of such dull fare (for which their wages were docked) rioted, smashing machinery and chanting "Kill all the Americans!"

Leaf blight and caterpillars devastated Ford's rub- ▸▸

ber trees. In 1945 his son took over the firm and shut the Amazonian project down. The land, into which \$20m (around \$400m in today's money) had been sunk, was sold back to the Brazilian government for less than \$250,000. Fordlandia became a ghost town, remaining largely deserted until the 2000s.

Manaus, after decades of relative obscurity, eventually found a new money tree to tap. The military regime that seized power in Brazil in the 1960s wanted to populate the Brazilian Amazon with Brazilians, so that no neighbouring country might be tempted to encroach on it. So it took advantage of a "free-trade zone" set up in 1957 which allowed goods to escape tariffs so long as they were made or assembled in Manaus. Since the 1970s Brazilian consumers have paid higher prices for motorbikes, televisions, fridges and a host of other goods, in order to create jobs in the Amazon. This makes little economic sense—few firms would spontaneously build factories in such a remote spot—but geopolitics trumps efficiency.

Today Manaus is a big city, but still has a frontier feel. Half of its 2m inhabitants live in slums; they drift in from other parts of the region, clear land, build shacks, hook up Wi-Fi cables and hope that one day they will be granted title to the homes they occupy. Violence is rampant, as in the old days: in some areas, walls are pocked with bullet holes, mementoes of battles between drug gangs.

Today Manaus is a big city, but still has a frontier feel

As for Brazil, it has found a new natural resource to get excited about. At first glance the present-day oil boom is very different from the rubber boom a century ago. Oil workers are well-paid. Managers are professional. Oil firms innovate.

On a dock in Macaé, nearly 3,000km from Manaus, sits a row of gigantic torpedo-like objects. They are a local invention. A metal tube is filled with heavy concrete discs. This "base torpedo" is dropped into the water and plunges to the bottom, dragging a chain behind it. Fins guide it; a long spike on its nose lets it pierce the ocean floor, where it buries itself for ever, helping to anchor a floating oil rig. Petrobras, the state oil firm, has poured oodles of capital into extracting Brazil's "pre-salt" oil, billions of barrels of which lie far below sea level, beneath a thick layer of salt.

The world's thirst for petrol has brought prosperity to Macaé. Until the 1970s it was little more than a fishing town. Now its warm, windy seafront is lined with fancy bars and restaurants. Oilmen carouse on a strip called Praia dos Cavaleiros (Knights' Beach), next to Praia do Pecado (Sin Beach, which is disappointingly quiet). Downtown shops offer the latest gadgets and the sparkliest jewellery. Workers from all over Brazil flock to Macaé. The population has quintupled since the late 1970s, to around 260,000.

Dilma Rousseff, Brazil's president from 2011-16, said the pre-salt oil was "strong evidence" that "God is Brazilian." Evidence emerged, however, that God punishes hubris. In 2014-15 the oil price crashed, sparking a fiscal crisis and Brazil's worst recession since 1990, when the country was battling hyperinflation. In good times, Ms Rousseff had splurged much of the oil bounty on vast tax breaks for her pet industries and absurdly lavish pensions for civil servants that spurred women to stop work at 50 and men at 55. In bad times, she was impeached.

This took place as Brazil's biggest-ever corruption scandal was unfolding—centred on Petrobras. The national oil firm had long been inefficient: required by the state to hire locals wherever possible and favour local suppliers even if they cost more. It turned out to be filthy, too. Billions of dollars of contracts were padded, kickbacks were pocketed, and half the ruling class seemed to be in on the act. The scandal tarnished three former presidents, dozens of lesser politicians and scores of executives. It disgusted the public and paved the way for the angry populist presidency of Jair Bolsonaro (who lost an election in October).

It devastated Macaé. Rodrigo Vianna, an economist in the mayor's office, says the city lost 50,000 jobs between 2015 and 2020, as low oil prices and the graft probe forced Petrobras to hunker down.

Then the oil price soared again, partly because of Vladimir Putin's invasion of Ukraine. The Brazilian Oil and Gas Institute, a think-tank, expects oil production in 2031 to be 5m barrels a day, twice what it was in 2015. Luis Inácio Lula da Silva, an ex-president who was jailed for taking bribes during the big corruption scandal, will return to power in January. (His convictions were later overturned.) He is eagerly dreaming up ways to spend the expected bonanza.

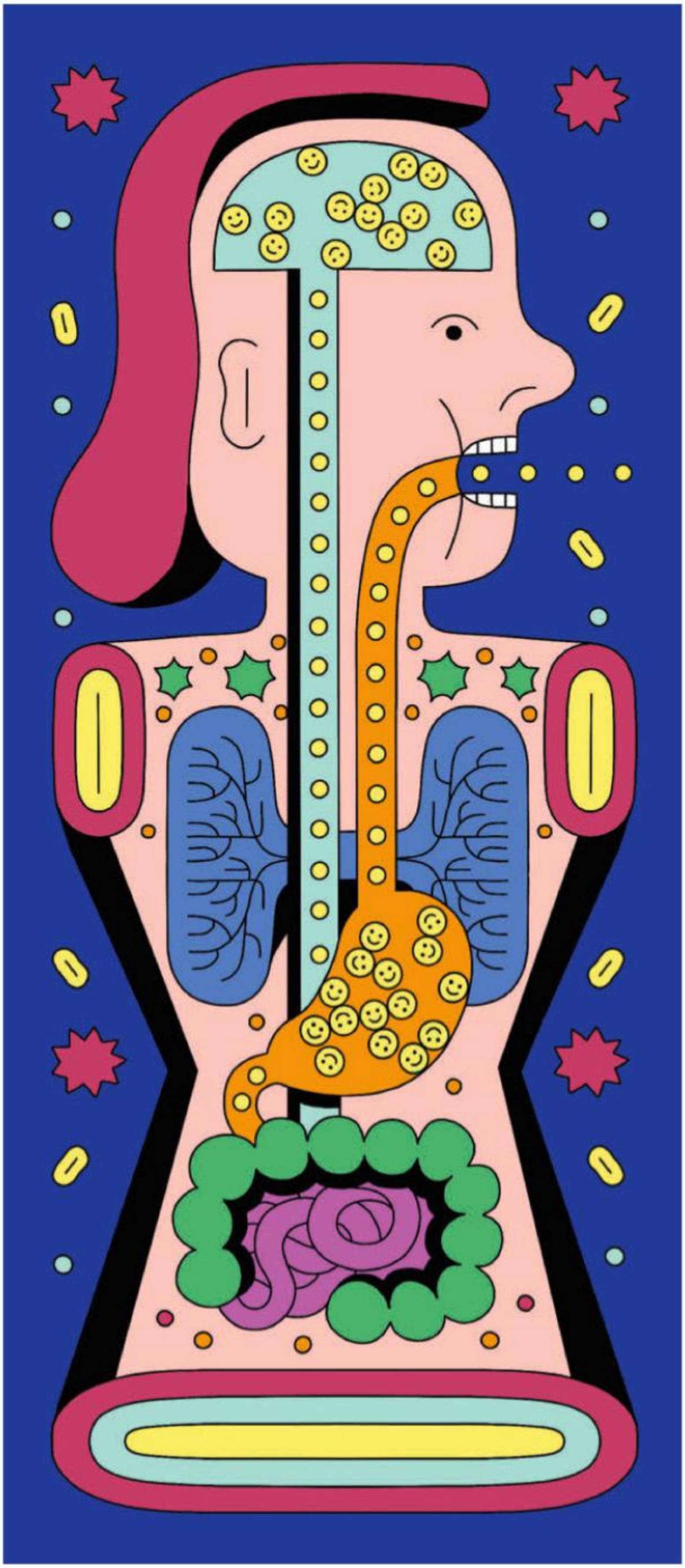
TURNING BLACK STUFF INTO GREY MATTER

Yet all this is based on an industry whose long-term future is in doubt. If the world is serious about curbing climate change, petrol cars must eventually give way to electric ones, and gas-fired power plants to nuclear, solar and wind. If demand for hydrocarbons falls, so will the price, and much of Brazil's reserves may have to be left below the salt. When oil sells for \$90 a barrel, more than 95% of Brazil's proven reserves can be profitably extracted, estimates Rystad Energy, a consultancy. At \$30 a barrel, less than half can be.

What has Brazil learned from the rubber crash? "Nothing," says Roberio Braga, a historian in Manaus. "The money is being consumed, not invested." That is too harsh. Much has been wasted, to be sure. But efforts have been made to convert petrodollars into human capital. This is the race that all petrostates face: to turn a windfall into brainpower that will generate sustainable prosperity. Brazil has done better than some, pouring cash into schools and basic health care. Life expectancy rose from 70 to 76 between 2000 and 2018, and Brazilian schoolchildren's scores on international tests improved in maths, reading and science. (These improvements were partly reversed by the pandemic.)

Mr Vianna says Macaé will become "a capital of knowledge" as well as energy, thanks to local universities and research institutes. He insists it will be better prepared for change than Manaus was when the rubber boom crashed. Oil will still be needed to make plastics for a long time, he predicts, and gas-fired power stations will hum for years. As the world shifts away from fossil fuels, the city will diversify into hydrogen, solar cells, wind power—and tourism, he says.

Not all are convinced. Jefferson Assis, who manages a bar on Knights' Beach, moved to Macaé from Espirito Santo, the state next door. He is glad he did: he earns more than he did back home. But he is not investing his savings in Macaé. Instead, he is buying farmland in his home state. "I don't want to put all my eggs in one basket," he confides. Also, he has read a bit of history. His fear is that "what happened in Manaus could happen in Macaé—a collapse." After all, he muses, "Oil is already an outdated kind of energy." ■



FOOD AND MENTAL HEALTH

USE YOUR LOAF

How food affects the mind, as well as the body

A GLISTENING ROAST turkey. Rounds of golden, roast potatoes and parsnips. Pigs in blankets (because what meat-based meal is not improved by a side of sausages wrapped in bacon?). Brussels sprouts. Bread sauce. Cranberry sauce. Gravy. And, to finish, brandy-sodden pudding topped with butter.

Countries vary in their Christmas-meal traditions. Poles prefer fish, often carp. A Swedish *julbord* groans with variety, though herring will never be far off. But the repast served at most British tables on December 25th is iconic, and has been (with goose sometimes standing in for turkey) since the time of the Victorians.

A good meal has a positive impact on one's mood. Part of that pleasure is immediate. Those who avoid overindulgence and family squabbles will enjoy a postprandial rise in their blood sugar. That will prompt a flood of endorphins—chemicals that act as happy hormones—to rush through their brains.

But the pleasure goes deeper. Animal proteins, such as roast fowl, hams or fish, contain all the amino acids that the body needs including many it cannot make for itself. Tyrosine and tryptophan are needed for the production, respectively, of dopamine, a neurotransmitter that controls feelings of pleasure and reward, and serotonin, another such, which helps regulate mood. Brussels sprouts contain folate, a vitamin without which the brain cannot function properly. And cranberries are high in vitamin C, which is involved, among other things, in converting dopamine to noradrenaline, another neurotransmitter, and a lack of which seems to be associated with depression.

With mental-health disorders rising, a growing number of scientists are investigating how food or nutritional supplements affect the mind. Brains, being the most complex and energy-demanding of the body's organs, almost certainly have their own specialised, nutritional needs. Welcome, then, to the emerging field of nutritional psychiatry.

An adult human brain, which accounts for about 2% of a body's mass, uses 20% of its metabolic energy. An host of vitamins and minerals are necessary to keep it going. Even in one small section of the brain's metabolic pathways, many essential nutrients are needed. The conversion of tryptophan to serotonin alone requires vitamin B6, iron, phosphorus and calcium.

Disentangling the brain's nutritional needs from those of the rest of the body is tricky. Recommended daily allowances (RDAs) are little help. They were for- ▸▸

mulated during the second world war on the basis of the nutrients needed for the physical health of troops. No such RDAs exist for the brain. Not yet, at least.

Compared with other fields, nutritional science is understudied. That is partly because it is hard to do well. Randomised controlled trials (RCTs), used to test drugs, are tricky. Few people want to stick to an experimental diet for years. Instead, most nutritional science is based on observational studies that try to establish associations between particular foods or nutrients and diseases. They cannot be used to definitively prove a causal connection between a disease and a particular contributing factor in a diet. But as with smoking and lung cancer, put together enough of these kinds of trials and causal narratives begin to emerge.

It is now clear that some diets are particularly good for the brain. One recent study concludes that sticking to the "Mediterranean diet", high in vegetables, fruit, pulses and wholegrains, low in red and processed meats and saturated fats, decreases the chances of experiencing strokes, cognitive impairment and depression. Other recent work looking at a "green" Mediterranean diet high in polyphenols (the antioxidants found in things like green tea) found it reduced age-related brain atrophy. Another version, the MIND diet, emphasises, among other things, eating berries over other kinds of fruit and seems to lessen the risk of dementia.

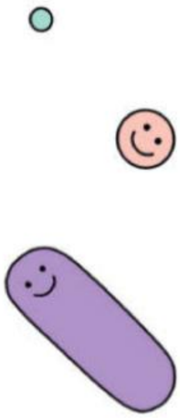
Scientists think such diets may work by reducing inflammation in the brain. This, in turn, may affect areas such as the hippocampus, which is associated with learning, memory and mood regulation—and where new neurons grow in adults. Studies in animals show that when they are fed a diet rich in omega-3 fatty acids (from walnuts, for example), flavonoids (consumed mainly via tea and wine), antioxidants (found in berries) and resveratrol (found in red grapes), neuron growth is stimulated and inflammatory processes are reduced. This fits with research suggesting that those who regularly eat ultra-processed, fried and sugary foods, which increase inflammation in the brain, heighten their risk of developing depression.

The hanger games

That Christmas feast is often lambasted as an orgy of gluttony. In fact, with its sides of multiple vegetables, its nutritional density may make it among the healthier meals some people eat throughout the year. Only 10% of adults in America consume their recommended daily serving of vegetables, and just 12% get enough fruit. It is a similar story in much of the world. As a result, many turn to vitamin and mineral supplements to make up for their dietary deficiencies.

In 2018, 54% of North Americans and 43% of Asians were taking a nutritional supplement. The most common types are multivitamins, vitamin D and omega-3 fatty acids. America spends the most on dietary supplements, followed by western Europe and Japan. One estimate put the global market at $152bn in 2021, with 9% annual growth expected until 2030. But in many places the regulation of the supplement industry is either weak or non-existent and little rigorous research has been carried out on either their benefits or risks.

The story of nutritional supplements starts in 1912 when Casimir Funk, a Polish-American biochemist, proposed that unidentified organic substances were required in tiny amounts to maintain human health. It was a revolutionary idea. And he was correct. Along



Only 10% of adults in America consume their recommended daily serving of vegetables



with macronutrients such as protein and carbohydrates, there were undiscovered components of foods—micronutrients. The first vitamin to be isolated and then synthesised in 1936 was thiamine or B1. Deficiency causes beriberi, a disease that can affect both the cardiovascular and the central nervous systems. The discovery prompted a race to isolate, characterise and manufacture vitamins and ultimately launched the supplement industry.

Half a century after Funk's discovery, the notion that nutrients might be able to treat mental illnesses took hold. Abram Hoffer, a Canadian psychiatrist, tried treating schizophrenics with high doses of vitamins B3. Then in 1968 Linus Pauling, a Nobel-prize-winning chemist, coined the term "orthomolecular psychiatry" to describe the theory that varying the concentration of substances normally present in the body could treat mental disease. But there was little evidence to support their claims and in 1973 the American Psychiatric Association released a report dismissing orthomolecular psychiatry, highlighting the lack of controlled experiments and concluding that large doses of B3 were "useless and not without hazard".

The absence of any large-scale, serious studies in the field of nutritional psychiatry left an opening for those keen to promote the potential of supplements far beyond any existing science. Autumn Stringam is one such case. After her first baby was born in 1992 Ms Stringam, a Canadian, was admitted to a psychiatric ward with severe post-partum psychosis. Her family had a history of mental illness, including bipolar disorder, psychosis, depression and suicide. Her prognosis was grim. But then her father, together with a friend working in the animal-feed business, developed a supplement containing a range of vitamins and minerals that they claimed were based on supplements that reduced anxiety and stress in pigs. Ms Stringam credited the supplements with her recovery. Her story spread and the family started selling the pills widely.

There were, however, no trials proving efficacy or safety. The suggestion that the supplements were a cure-all led one schizophrenic to abandon his prescribed medication. He subsequently murdered his father and seriously injured his mother. In 2003 the Canadian drug regulator, concerned about the use of un-

tested supplements for serious mental-health disorders, seized the pills. The episode cemented the idea in many minds that using micronutrients to treat mental-health conditions was pure quackery.

And yet today much science does support the idea that there is a strong link between what people eat and their mental health. Studies have shown that B12 shortages cause depression and poor memory and are associated with mania and psychosis. Low levels of vitamin D are associated with increased risks of dementia and stroke, and are implicated in neurodevelopmental disorders. A recent RCT found that high doses of B6—100mg per day rather than the RDA of 1.3mg—reduces anxiety. In a study by Robert Przybelski of the University of Wisconsin of geriatric patients attending a memory clinic, 40% were deficient in one vitamin (of five that were looked for), and 20% in two.

EPICURIOUS

So why not simply pop a handful of vitamins rather than bother with a complex, and perhaps expensive, diet? In part because you rarely know exactly what you're getting. Ted Dinan, a professor of psychiatry at University College, Cork describes the supplement industry as the "Wild West". Unlike tightly regulated drugs, supplements may contain more, or less, of what they claim. Too much vitamin A can be harmful in pregnancy. There are a variety of health risks from taking beta carotene and vitamin E. High doses of one nutrient can interfere with the absorption of others.

Any testing of the use of micronutrients in mental-health conditions in Canada stalled after the episode with Ms Stringam. And yet some remained intrigued. Julia Rucklidge, a clinical psychologist at the University of Canterbury in New Zealand, was approached in 2003 by a Canadian colleague to see if she might be interested in running such trials. She was sceptical: "I had been taught that nutrition is completely irrelevant to brain health." At the time, she recalls, she was immersed in positive data showing the efficacy of Prozac, an antidepressant, and stimulants such as methylphenidate for attention-deficit hyperactivity disorder (ADHD). She was excited, she explains, to have these new drugs as tools to treat mental-health problems.

Then she was forced to question those views. She had been treating a child with obsessive compulsive disorder for a year with no success. The family did not want medication. One day when they were leaving she remembered she had a box of supplements under her desk for a trial she was planning. She offered them to the parents with the caveat that she had no idea whether they would work. Two weeks later they returned, saying the child's obsessions were gone.

Dr Rucklidge was sceptical that any improvement was due to the supplements but it nudged her towards conducting more trials. A few decades on and she has shown that supplements are helpful in children with ADHD—particularly those who struggle to regulate their emotions. The trial was recently replicated in America. Other evidence of the efficacy of supplements is emerging. The results of a large RCT published in September showed that taking a daily multivitamin may improve cognition in those over 65. Researchers followed more than 2,000 people and estimated that three years of supplementation led to a 60% slowing of cognitive decline.

A person's capacity to deal with stress can be altered by a single strain of bacterium



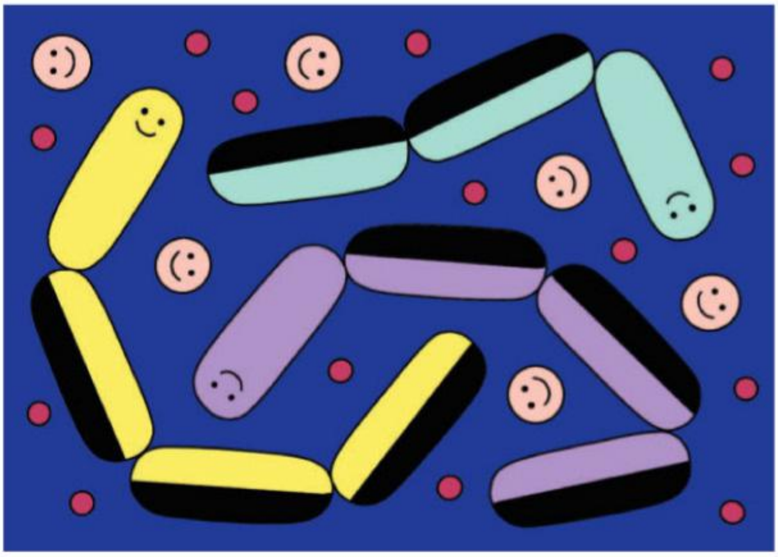
Nutritional psychiatry is still in its infancy. As it becomes clearer which micronutrients affect the brain, the next stage is to determine how they do so. Another new field of research could help with that.

One of the most intriguing scientific developments of recent years is the discovery of the importance of micro-organisms in the gut as intermediaries between what goes into the mouth and what happens in the brain. Researchers now know that microbes form a complex ecosystem in the gut—known as the microbiome. These microbes need micronutrients. A diet lacking in them, such as that consumed by many in the West, may lead to an imbalance in the gut microbiome.

Could this affect how people think and feel? Evidence is mounting for a link between the gut and the brain in what is termed the psychobiome—part of the microbiome—that does just that. The substances that the various bacteria, viruses and fungi produce may go directly into the bloodstream and infiltrate blood vessels, or they may stimulate the vagus nerve that connects the gut and the brain. The bacteria in the gut produce, among other things, tryptophan, the amino acid thought to have come entirely from the diet.

The sorts of microorganisms found in yogurt specifically, and fermented foods generally, have also been shown by trials to reduce anxiety. Most astonishing to Dr Dinan is the finding that a person's capacity to deal with stress can be altered by a single strain of bacterium. Studies show that two species of *Bifidobacterium* and one of *Lactobacillus* each reduce stress. In a trial on germfree mice, an abnormal stress response was reversed when they were given oral doses of *Bifidobacterium infantis*. These findings have given rise to the notion of "psychobiotics"—bacteria that, when ingested, may have similar effects to antidepressants or anti-anxiety medication.

The difficulty with developing this new field of research lies in the economics. Unlike drugs, vitamins, minerals and microbes are not patentable. Pharmaceutical firms have nothing to gain commercially from running trials on pills that anyone can flog. It is difficult to trust industry-sponsored research since it has a bias towards favourable findings. Governments, universities and health systems are better placed to run such trials. None of this will replace the need for a good diet. But it would provide food for thought. ■



DOG BREEDS

PAWS FOR THOUGHT

A dog is a man's best friend but people are fickle

"EVERY DOG must have his day," wrote Jonathan Swift. And yet some seem to have more days in the sun than others. Breeds spring in and out of fashion. And stereotypes are not always right: the French demonstrate a striking preference for the Australian shepherd over the poodle, the country's national dog.

Pure-breed puppies are certified by national kennel clubs to make sure they meet certain ancestral and aesthetic requirements. To determine what shapes tastes, *The Economist* examined historical data on 86m dog breed registrations in nine countries: America, Britain, Finland, France, Germany, Japan, New Zealand, South Africa and Sweden.

Some countries are particularly nationalistic in their choices. Breeds of German origin represented 83% of registrations in the top ten breeds in Germany over the past ten years compared with 33% on average in the other eight countries. Colonialism seems to leave a mark; New Zealand and South Africa disproportionately favour British dogs. And nationalism can interact with history. German shepherds were co-opted as emblems of Germany in first world war propaganda, which torpedoed their popularity in America and the rest of Europe.

Elsewhere practicality carries more weight. In Japan, three breeds—the toy poodle, the chihuahua and the dachshund, none of them Japanese—account for 50% of registrations over the past ten years. They are, however, all small, useful in a densely populated country filled with tiny apartments.

Winning the American Kennel Club's Westminster dog show increases the odds of a new puppy registration of that breed in a country by, on average, 67% in the year the breed wins, and by 93% two years later.

More striking is the effect of on-screen appearances. A positive starring role in an American film increased the odds of registering a new puppy of the same breed by 119% in the year the movie was released, rising to a peak of 176% higher two years later. In seven of the nine countries, such releases led to a statistically significant bump (Japan and South Africa seem sniffy about American pop culture). Repeated performances by labradors in films such as "Marley and Me" may have helped the breed hold the number one spot in America for the past 31 years. Top dog. ■

For an interactive version of this story, visit **economist.com/PopularDogs**

SPOT THE DIFFERENCE

When Disney's "101 Dalmatians" was released in 1961, 2,300 **dalmatians** were registered with the American Kennel Club (AKC). Re-releases of the movie in 1969, 1979, 1985 and 1991 unleashed a surge in demand and registrations reached a peak of 42,816 in 1995. As awareness of their high energy-levels grew, interest waned. By 2006 registrations had plummeted to 820 though the breed is rising in popularity in Germany.

WHAT A WAG

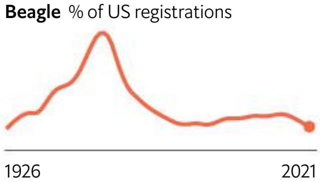
Germany's efforts to promote the **German shepherd** as a symbol of national unity during the first world war trashed the breed's popularity in America. Then in 1918 Rin Tin Tin, a German shepherd puppy saved by an American GI on a battlefield in France, raced to the rescue. Rin Tin Tin starred in 27 American films from 1922 to 1931. He dug Warner Bros out of a financial hole and German shepherds bounded to the top spot between 1926 and 1928.



THE BEAGLE HAS LANDED

Beagles were beloved in America by the 1940s. Norman Rockwell frequently included them in his idealised portraits of American family life. Then on October 4th 1950 one particularly endearing, if lazy, beagle made his debut in Charles Schulz's Peanuts comic strip. By 1953 Snoopy had propelled beagles to the position of top dog in the AKC charts, where they remained until 1959, loping past the long-reigning cocker spaniel.

Beagle % of US registrations



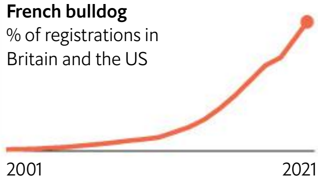
OODLES OF POODLES

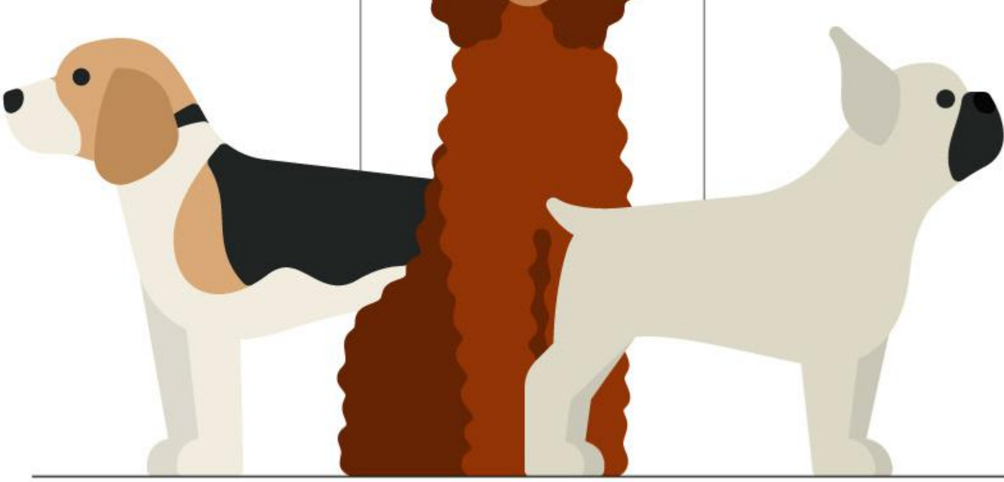
In 1970 the **poodle** was the fifth-most-popular breed in France. But popularity led to overbreeding which in turn led to snappy pooches and its popularity subsequently tumbled. Still, according to Stanley Coren, a psychologist who writes about the intelligence of dogs, poodles are the second-smartest breed (bested only by border collies). That blend of brains and beauty may explain their ten victories at the Westminster dog show.

A FRENCH REVOLUTION

The French writer Colette likened the visage of her beloved **French bulldog** to that of a frog that had been sat upon. The breed's popularity, nonetheless, is soaring. In 1966 the breed made up just 0.006% of AKC registrations; by 2021 it had sprung up the rankings to seize the number-two spot. Frenchies can thank celebrities such as Reese Witherspoon and Lady Gaga who post selfies with their pets for their new following.

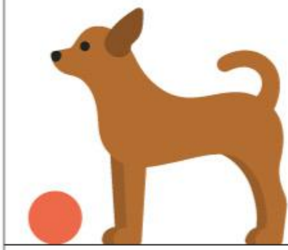
French bulldog
% of registrations in Britain and the US





KONNICHIHUAHUA

In 1955 just four **chihuahuas** were registered in Japan. Then in the early 2000s a chihuahua named Qoo-chan, dressed in a suit and tie, appeared in a TV advert. Japan went mad for the diminutive pups which are the smallest recognised dog breed. It is now the second-most-popular dog in Japan; only the toy poodle is more beloved (see table). Two American films, *Legally Blonde* and *Beverly Hills Chihuahua*, further raised the breed's profile.

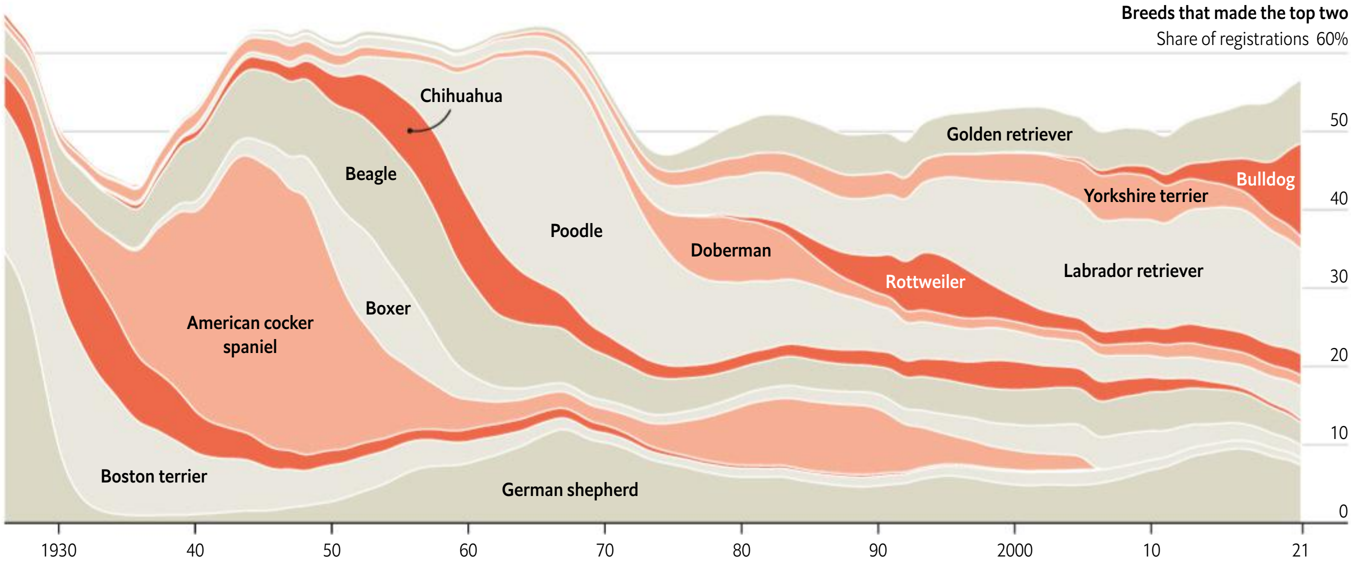


Most popular breeds by country

America	Labrador retriever
Britain	Labrador retriever
Finland	Labrador retriever
France	Australian shepherd
Germany	German shepherd
Japan	Toy poodle
New Zealand	Labrador retriever
South Africa	Bulldog
Sweden	Labrador retriever

→ **The most popular dogs in America, 1926-2021**

Source: American Kennel Club





INFLATION, PAST AND PRESENT

WHEN MONEY DIES

The great inflation of the 1500s is echoing eerily today

IN THE DAYS of Henry VIII, England seemed to be falling apart. There had never been so many beggars, witnesses reported, many of whom would cut your throat given half a chance. Everyone suspected, rightly it turns out, that the currency was being debased. Morals were as degraded as the coinage. At one infamous funeral in Kent midway through Henry's reign, an observer reported that "the burial was turned to boozing and belly-cheer", with an orgy involving "seven score persons of men, every one of them having his woman". The feeling that something was not quite right was shared across Europe, which by the 1590s was consumed by financial crisis, social unrest and war.

The root of the chaos was a wholly unexpected, and wholly unfamiliar, surge in inflation. For at least the 300 years leading up to the 1500s, western Europe made modern-day Japan look like Zimbabwe. In England in 1500 the price of a standard basket of goods facing consumers (largely food, but including other things such as clothing and light) was no higher than it had been in 1275, suggests work by Gregory Clark, a historian, and researchers at the Bank of England.

All this changed after 1500. Sustained price inflation, once unthinkable, became unstoppable. Within 50 years average prices across England had doubled. Before long Italian prices were rising by 5% a year, research by Paul Schmelzing of Boston College suggests. In France and Holland, inflation hit 4% by the end of the century. In Russia the inflationary trend picked up from the 1530s. The global rate of inflation peaked in the 1590s at close to 3% a year. If 3% does not sound too painful, bear in mind that growth in nominal incomes in a pre-capitalist world was basically zero: almost any

level of inflation made people poorer.

The inflationary surge also lasted a long time—longer, even, than the galloping-inflation era in the early 19th century caused by the Napoleonic wars, or that of the 1970s. Some countries suffered more than others. Scottish inflation was often a lot worse than English. Dutch inflation might have been the worst of all.

Just as with today's inflation, pundits in the 1500s furiously disagreed over the causes. Nowhere was this debate more heated than in France in the 1560s and 1570s. Jean Cherruyer de Malestroit, one pundit, played the role of Larry Summers, a former American treasury secretary, arguing that price pressure was the result of excessive spending. Jean Bodin, the Paul Krugman of his day, argued that unexpected shocks to the global economic system were to blame. Both economists wrote pamphlets attacking the other's position. Historians continue to disagree.

Like Messrs Summers and Krugman today, both Malestroit and Bodin had a point. Excess demand certainly played a role. The population had grown fast after the Black Death; many of those people had moved to cities. This raised demand for food even as it cut the number of farmers producing it. And some monarchs goosed the economy by manipulating the currency.

Henry VIII's "great debasement" of the 1540s involved taking one gold coin, melting it down, adding worthless metal, and then recasting it as two "golden" coins. Using this method Henry plucked coins out of thin air worth about 2% of GDP in some years. Henry spent the extra cash on wars and palaces. The resulting boost to nominal demand provoked merchants to raise their prices. It was not just Henry, or his successor, Edward VI, who debased the currency. Scotland started doing it in 1538 and then doubled down on the strategy in 1560. In the southern Lowlands, or today's Netherlands, Belgium and Luxembourg, the silver coinage was debased 12 times from 1521 to 1644.

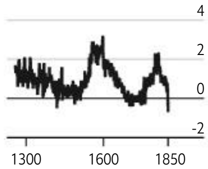
But debasement alone does not explain the great inflation, whatever Malestroit might have argued. It was not a new strategy, for one thing. It is reckoned that France debased its silver coins 123 times between 1285 and 1490. Between those years there was no inflation. And yet in the 1500s, even as many countries slowed down their debasements, they all saw inflation. Spain stopped debasing entirely from 1497 to 1686. Some historians, therefore, follow Bodin and say that demand-side explanations by themselves are insufficient. They also look at what was happening across the Atlantic, the source of a huge supply shock to Europe's economy.

In about 1545 people discovered vast silver deposits in Bolivia. Potosí, the centre of this lucrative new industry, became perhaps the fifth-largest city in the Christian world by population (after London, Naples, Paris and Venice). In the first quarter of the 1500s just ten tonnes of silver had arrived on Europe's shores. By the third quarter of the century Europe imported 173 tonnes. Spain, where much of the metal arrived, initially experienced especially high inflation—but it then spread across the rest of Europe, as far as Russia.

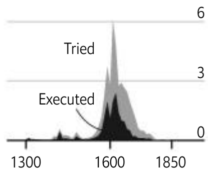
Today's surge in inflation, only a year or so old, has already had profound social and political consequences. Consumer confidence is at rock bottom as real wages decline; incumbent politicians are unpopular; and protests about the cost of living are mushrooming.

All that is peanuts, however, compared with the effects of the 16th-century inflation. Average real wages, which at the start of the 1500s were at the princely level of about seven pence a week, then fell, and fell, and fell. They would not regain their purchasing power until the late 19th century. The consequences of this almighty squeeze on living standards went beyond rampant beggary and orgies at funerals. Across Europe, society and politics became radically unstable.

England, annual inflation rate*, %



Witch trials, '000



*50-year moving average
Sources: Bank of England; "Witch trials", by P. Leeson and J. Russ, 2018

In a paper published in 1986 Jack Goldstone, now of George Mason University, asked why from 1550 to 1650 "states broke down on a wide scale". In France in 1572 the Saint Bartholomew's Day massacre involved Catholic-on-Protestant assassinations, resulting in thousands of deaths. The 1590s were years of revolt in Austria, Finland, Hungary and Ukraine. Russia experienced its "time of troubles", a 15-year period of lawlessness from 1598. The Thirty Years War started in 1618, and the period culminated with the execution of England's Charles I in 1649. In each year of the first quarter of the 1500s, about six in every 100,000 people globally died in conflict. From the 1620s to the 1640s, about 60 in 100,000 were perishing annually. The number of people tried and executed for witchcraft surged.

Unhappy elites were, in part, responsible for the chaos. The gentry often depended on fixed payments (such as rents) for their income, and so may have experienced the effects of the great inflation more than those who could simply raise prices. In northern France and Belgium inequality fell in the 1560s and 1570s as middle-income people did fine while rich landlords were squeezed. Plutocrats, not used to economic strife, agitated for change.

Just as with today's inflation, pundits in the 1500s furiously disagreed over the causes

RUFF AND TUMBLE

More importantly governments suffered. Centuries of zero or low inflation affected how they structured state finances. Monarchs often leased plots of land on fixed rents for as long as 99 years. Customs duties were held at nominal prices. This was a problem once inflation took off. From the mid-1570s to the mid-1590s Spain's tax revenues were constant in cash terms, but they had less purchasing power. And governments' expenses, which were not fixed, soared. In the century after 1530 the price of putting a soldier in the field rose fivefold.

The inflation thus, over time, contributed towards weaker states and a debt crisis. Governments did what they could to raise revenue. In 1544 and 1545 Henry VIII offloaded state assets, such as plots of land, worth over £150,000 (or more than 2% of GDP), and there were smaller sales under Elizabeth I in the early 1600s. Knighthoods were granted "in unprecedented numbers", most for large fees, pointed out Mr Goldstone. Borrowing exploded, just at a time when many lenders were starting to raise interest rates. Defaults, rare in the 1300s and 1400s, multiplied, with France (in 1558, 1624 and 1648), Portugal (in 1560) and Spain (in 1557, 1575, 1596, 1607, 1627 and 1647) reneging on claims to foreign investors.

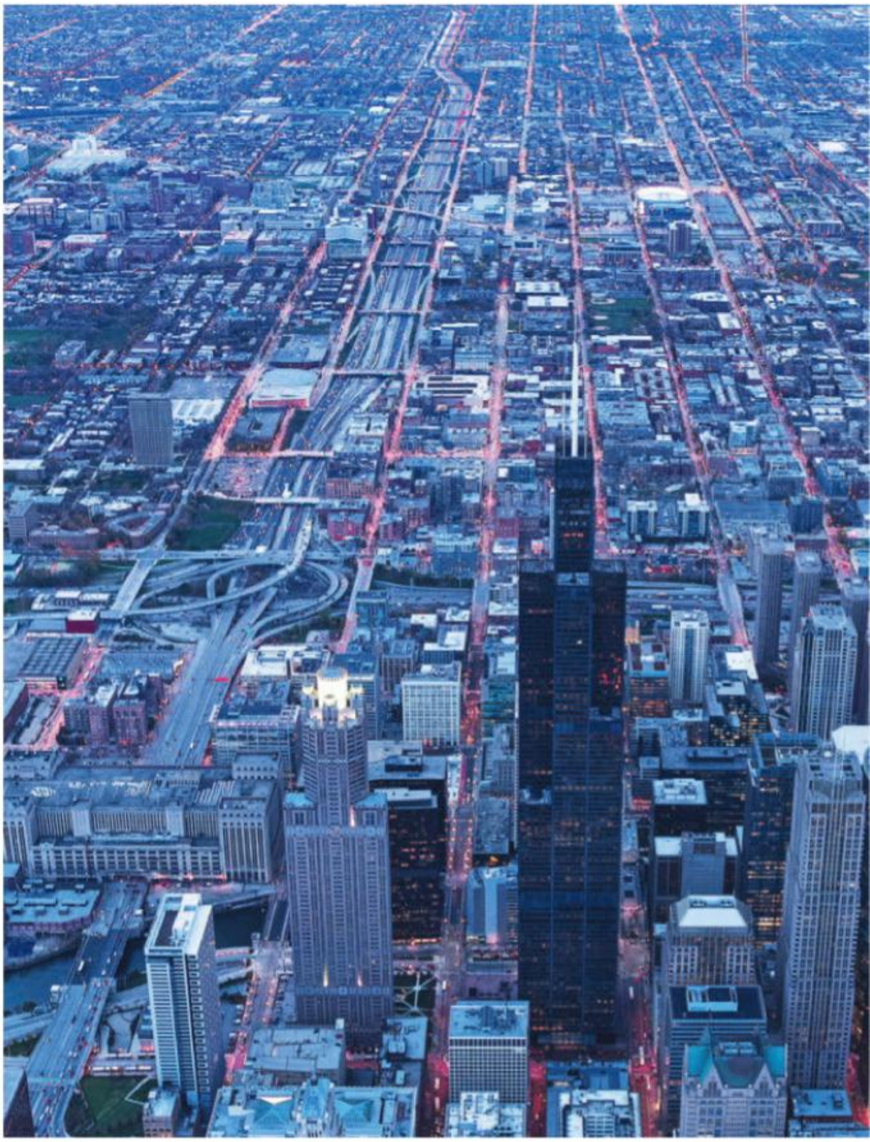
Eventually, the great inflation came to an end. Population growth slowed, reducing demand for goods and services. Monarchs got a handle on monetary and fiscal policy, promising to default and debase less frequently than they used to. And the flow of precious metals from the Americas slowed. Yet the lessons from the century are clear. No matter the cause, societies which let inflation set in should expect more than just their living standards to be debased. ■

GOING

STREET PLANNING

CHICAGO

The sad decline of the oldest form of city planning



THE CROSSROAD of South Ashland Avenue and West County Line Road, in Will County, Illinois, is a picture of classic midwestern rural America. Ashland Avenue, at that point, is barely wider than a lane. On one side is a vast corn field; on the other, a few ranch houses, each set on at least an acre of land and hidden behind hedges. Farther up the road a bright red combine harvester works its way through the fields. Chevrolet pickup trucks, a few of them seemingly having survived since the 1950s, are the main vehicles rushing along the county line. Yet this junction also represents the very end of the great metropolis of Chicago.

The address of the final home on the corner, listed on the mailbox outside, is "32649". Divide that figure by 800 and you get the distance in a straight line running south in miles—40.8—from Madison Street, at the centre of the Chicago loop, its downtown business district. Almost every street address in the city is configured thus. Streets that run east to west are measured from State Street; those that run north to south are measured from Madison. Each standard-sized block measures an eighth of a mile, and has 100 addresses.

Chicago has the world's most consistent, orderly grid layout. Passengers on planes landing at night at O'Hare International Airport (address: 10,000 West Balmoral Avenue, putting it 12.5 miles west of downtown) see a city that looks like a giant circuit board, with regimented streets going almost exactly north-south or east-west. At the spring and autumn equinoxes, when Earth is a quarter of the way on its annual orbit around the sun, this means that the sun rises and sets in line with the street grid. On those days, Chicagoans flock downtown to see the streets lit up at sunset as though by a perfectly positioned spotlight—pouring scorn on Manhattan's equivalent dates, which both come in summer, due to its grid's off-north alignment.

Thanks to the rise of digital mapping, the relative orderliness of different street systems can now be calculated. Geoff Boeing of the University of Southern California created a measure of city "entropy", looking at how consistent the direction of streets in over 100 major cities worldwide is, as well as how continuously

OFF GRID



they run through any given city without interruption. A measure of zero suggests a city with absolutely no consistent street direction. A measure of one implies a perfect grid, with no interruptions or curves. Chicago hits 0.89, higher than any other city on Earth. London, a city stitched together over millennia from villages on the lines of haphazardly placed Roman, medieval and Victorian thoroughfares, gets just 0.015. This can be shown on a polar histogram. Cities like London are circular blobs; those like Chicago, clean crosses.

It will come as no surprise to frequent travellers that of the cities Mr Boeing studied, the 16 most orderly are all in North America. The United States is famous for its grid layouts, and the logical, easy-to-remember addresses they generate. Think of The Velvet Underground's song, "I'm Waiting for the Man". Any New Yorker, hearing the lyrics "Up to Lexington, 125", will know that Lou Reed meant 125th Street, the heart of Harlem. To find streets named in music about London, such as "Abbey Road", one must consult a map.

Yet street grids far predate the United States. The first grid-planned city known to archeologists is Mohenjo-Daro, built around 2600BC along the Indus river, in what is now south-eastern Pakistan. Like modern Chicago, the ancient city had wide thoroughfares for through traffic (probably then oxen carts, tiny models of which have been excavated from the site), built on a north-south/east-west alignment, binding narrower streets within neighbourhoods on the same grid. The ancient Greeks also liked the design. Since the designers of Mohenjo-Daro's names are lost to antiquity, the earliest known urban planner is Hippodamus of Miletus, whose plan for that city laid out even square blocks. Hippodamus was also among the first to connect town planning and social order. Aristotle deemed him "the first person not a statesman who made inquiries about the best form of government".

In Renaissance Europe, many early urban planners favoured radial cities, with roads that spread out from a central plaza, because they were easier to defend. Filarete, who designed one of the first "ideal cities", planned a city built in the shape of a star, with roads spreading out from a central square featuring a church, and ending at fortress walls. Palmanova, a small fortress town near Venice, is probably the closest example that was actually built.

But the grid kept coming back. In the Spanish colonies, the Law of the Indies decreed that new cities should be planned on grids, though as in Europe, with large squares at the centre for churches. Streets laid out along the squares would then block the wind, which would otherwise "cause much inconvenience" to the religious festivals and the like that were expected to be held in the plaza.

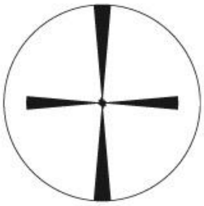
In the United States, a mix of idealism and practicality drove the adoption of the grid. In the late 17th century, William Penn laid out his city of brotherly love, Philadelphia, on a grid, as a sort of enlightenment alternative to the hierarchical European city. Instead of naming streets for what they contained, they were given numbers, or named for the trees lining them. Penn, a Quaker, believed that if all streets were equal, the people would be too.

Yet the reason why most American cities are built on grids is largely to do with money. Thomas Jefferson's land ordinance of 1785 laid out the as-yet-unconquered land to the west in perfect grids to make it easier to sell plots to farmers, and fund the young government. This logic applied to towns too. Chicago's grid was first laid out in 1830, when the city was little more than a fort on the Chicago river. Developers of later suburbs simply followed the old pattern, partly because it made it easier for trams to transport people between the new developments and the city. (As a result, as the city spread along the grid without a single numbering system, duplicate addresses proliferated. Chicago's clever street system was introduced only in the early 20th century, after the postal service threatened to cut the city off.)

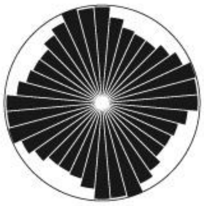
What makes the grid pop up again and again? The benefits of building streets in uniform grids are clear to anyone who has ever played SimCity. Roads are expensive to build. Laying them out in grids allows more buildings to sit alongside them, which can more easily ▸▸

Windy and winding

Chicago



London



be linked to sewage lines, electricity connections and gas pipes. Square lots hold rectangular buildings which are filled with rectangular rooms holding rectangular tables, beds and desks. "All of these rectangles combine and give us this efficiency of geometry," says Paul Knight, an architect who works for Historical Concepts, a firm based in Atlanta and New York.

And grids are easy to navigate. In London cab drivers have to spend up to four years learning the street network before they can get around without a map. Chicago or New York taxi drivers can achieve much the same thing in a day. Pedestrians can walk in a fairly direct route anywhere they need to go, without worrying about dead ends or impassable barriers between roads.

Grids also allow for what Laurence Aurbach, a historian of urban planning, says is the most consistent rule of city design throughout history: functional traffic separation. That is, the separation of pedestrians from vehicles; fast vehicles from slow ones; and through traffic from local traffic. Grids can have networks of wide main roads and narrow side streets, with pavements and crossings for pedestrians. Faster traffic can be constrained to wider through-streets, where it has to stop less often, leaving narrower residential streets quieter and less polluted. In the Victorian era this meant that a network of trams was easy to interlace through them, providing rapid transport for workers from expanding suburbs back into city cores. On a grid, you can get anywhere you want to go by taking two trams—one travelling north and south and another heading east or west.

And yet in the past century or so, grids have gone out of fashion. Some newish ones exist, such as Milton Keynes, a city first planned out in the 1960s in southern England, and Chandigarh, a city planned by Le Corbusier, a modernist architect, in India in the 1950s. But in the vast majority of new settlements all over the world streets twist and turn and end in cul-de-sacs. This, explains Jeff Speck, an urban planner and author of "Walkable Cities", is partly just because cul-de-sacs are cheap: you can fit a larger number of suburban detached houses around a smaller patch of tarmac. But it is also by design. From the 1930s onwards, inspired by thinkers like Ebenezer Howard, a British writer who believed everyone should live in radial "garden cities" of no more than 32,000 residents, governments began to encourage curving streets, as well as zoning to separate industry from residential areas.

The force driving much of this was the arrival of the car. As more of them filled up the streets, regular intersections meant traffic ground to a halt: "gridlock". Intersections meant more opportunities for crashes. Cul-de-sacs keep out unwanted traffic. The problem with this, as Mr Speck notes, is that it comes at the expense of people not in their own vehicles. If you are walking in a modern suburb, "You're always going out of your way," he says. It is not only people walking who have to take less direct routes. Buses are more effective when roads are in grids, allowing passengers to get anywhere with just one change.

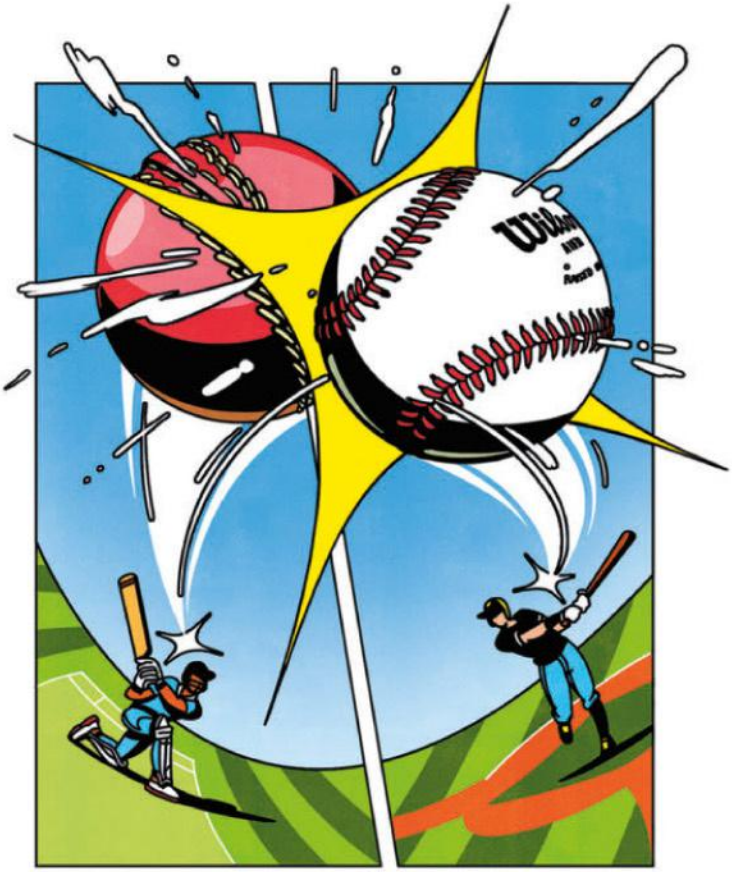
Could grids be resurrected? Architects are discovering that cul-de-sacs are a dead end. According to Mr Boeing's research, neighbourhoods that have been built in America in the past 20 years are more orderly than those of the two decades before. The problem is that these days so few are built they have little impact. And most new housing is grafted on to existing neighbourhoods—with street patterns established long ago.

Should construction one day take off again though, the grid might make a return. The important thing is to get them right. As Jane Jacobs, an influential early critic of the car-centric replanning of cities, argued in "The Death and Life of Great American Cities", what matters most is that the blocks are short, and the roads not too wide. Short blocks are easy to walk through, and create plenty of space for different businesses. Long blocks, designed to reduce the number of times cars have to stop at traffic lights, "thwart the potential advantages that cities offer", and turn streets into sewers for vehicles. Bear that in mind, and the oldest form of city planning remains as valuable as ever. ■

To explore the layouts of other cities, visit **economist.com/CityGrids**



→ *Aerial view of a suburb of Houston, Texas*



SPORTS AND IDENTITY

BATTER UP

GRAND PRAIRIE, MORRISVILLE AND STATEN ISLAND

Cricket is about to challenge baseball, and maybe what it means to be American, too

By the middle of September, half a diamond was all that remained of the infield at the AirHogs baseball stadium in Grand Prairie, Texas. The artificial turf was being carted away. The pitcher's mound was a crater. The dugout had been dug out. The stadium's tenant, a minor-league team of the same name, disbanded in 2020, a victim of the pandemic.

But on that Sunday the Dallas-Fort Worth area, of which Grand Prairie is part, thrummed with sports. In the car park across the road, souped-up cars were doing timed laps around a traffic-cone circuit. By lunchtime the nearby Olive Garden, a chain restaurant where a $25 meal supplies a day's calories, was full of diners in jerseys signalling their support for the Texas Rangers, a baseball team. At BoomerJack's Grill and Bar that evening, half the acreage on the dozens of flat screens was given over to the Dallas Cowboys' first game of the American football season.

That afternoon, northwest of Dallas, a dozen multimillionaires gathered at a 2,500-acre ranch. Horses bobbed in their stalls before the main house. At the back, manicured gardens were framed by rows of trees receding into the distance. Inside, around a Putinesque conference table, the men discussed their plans to bring a new sport to this sports-saturated country. When the AirHogs stadium reopens in the spring it will be the first home of Major League Cricket (MLC).

All the men were of Indian descent. They and their partners, who include the CEOs of Microsoft and Adobe, have put in $44m and committed another $76m to start the league. As owners of the first six franchises—in Dallas, Los Angeles, New York, San Francisco, Seattle and Washington, DC—they are betting that conditions are right to turn cricket, long seen as a baffling foreign game, into an American pursuit. The first season will run from July 13th to 30th.

Most Americans may not take cricket seriously—and most of the cricketing world does not take America seriously—but in 2024 the country will co-host (with the West Indies) a cricket World Cup, qualifying the American team automatically. USA Cricket, the governing body in America, wants to include cricket at the 2028 Olympics in Los Angeles. The world's biggest sports market and second-most popular sport are about to discover what they really think of each other.

Among cricket fans and pub-quizzers, this fact is settled: the first cricket international ever was played between the United States and Canada in Manhattan in 1844 (Canada won). Those of a nerdier bent also know that cricket was popular in antebellum America. The first recorded mention comes from Georgia in 1737, notes Tom Melville in "The Tented Field", a history of cricket in America. Baseball "remained in a distant second place until after the civil war," writes John Thorn, the official historian of Major League Baseball, in "Baseball in the Garden of Eden".

Various reasons have been set forth for cricket's decline after the civil war. One is that baseball was more conducive to battlefield conditions—it did not need a smooth batting surface. Another is that baseball was, then, a much shorter game. But above all, as Mr Melville writes, "Cricket failed in America because it never established an American character."

What, though, gave baseball its American character? Scholars agree the sport originated in England; there are references to "base ball" from at least the mid-18th century. In 1905 Albert Spalding, an American ▸▸

baseball pitcher and businessman, set up a commission to investigate the game's origins. Spalding had "a yearning for grand national stories to match the burning patriotism of the day", writes Beth Hise in "Swinging Away: How Cricket and Baseball Connect". The commission returned with the perfect—if bogus—story of Abner Doubleday, a civil-war hero who supposedly laid out baseball's rules in 1839 in Cooperstown, New York, home today to the baseball hall of fame.

The creators of this origin story "were not mere liars and blowhards", writes Mr Thorn. They "were trying to create a national mythology from baseball, which they identified as America's secular religion". Via email, he elaborates: cricket's popularity faded "as America's fervour for the Union coincided with the rise of professionalism in baseball and accompanying superior quality of play. The lower and middle classes embraced baseball, leaving cricket to the upper class, which had time to play and observe" the days-long matches. Cricket was consigned to society's margins, as a sport fit for toffs and perhaps migrants.

TAKE ME OUT TO THE BALL GAMES

Today, the conversion of the AirHogs baseball stadium is symbolic of larger trends within the world's two major bat-and-ball sports. "America's national pastime" has been declining in popularity for decades, according to Gallup, a pollster. Though 34% of Americans surveyed in 1937 named baseball as their favourite sport, by 2017, the last time Gallup asked the question, just 9% chose it, barely more than the 7% who picked soccer. The main problem is that baseball games have become longer and duller. In 1937 an average major-league game ran for about two hours. The average game now drags on for more than three hours. Yet average runs per game have remained about the same: between eight and ten, according to Baseball Reference, a sports site.

One culprit is time-wasting by pitchers and batters. Another is statistical-analysis-led strategy, which has robbed the game of some of its most exciting, if inefficient, tactics such as stealing bases. The chief problem is stubborn traditionalism. Changes that have irked fans and officials include radio commentary, stadium floodlighting and electronic decisions on strikes. That makes it difficult for baseball authorities to innovate.

No such malady afflicts cricket, whose legions of South Asian fans make it the world's most-watched sport after soccer. As baseball started its long decline, cricket was entering a period of growth and dynamism. In 1971 England were touring Australia for a terrifically dull series of tests—the traditional, five-day version of the game. When the third test was washed out, the teams agreed to play a one-day match. Some 46,000 fans showed up, compared with 42,000 over five days of the first test. (Australia won.)

Cricket tours embraced "one-day internationals" (ODIs) as a regular feature. By 1975 the International Cricket Council had launched an ODI World Cup. In the late 1970s a rogue American-inspired league, "World Series Cricket", introduced yet more innovations, such as floodlights, colourful uniforms to replace white flannel, and white balls to replace red ones. For a sport thought of by non-fans as a bastion of obscure tradition, cricket has proved remarkably adaptable.

Still, even ODIs were a whole day long. By the 21st century that seemed a bit much. In the early 2000s the English cricket board introduced a shorter form, known as Twenty20 (T20), which took just three hours. It was an instant success.

Cricket and baseball have met in the middle on length, but cricket provides far more action

That was just the beginning of T20's rise. In 2008 the Indian cricket board launched the Indian Premier League (IPL), a tournament of city- or state-based franchises. It borrowed heavily from American sports leagues, even importing cheerleaders from American football. As Tim Wigmore, a British sports journalist, put it in his book about T20, "The IPL marked the Americanification of Indian cricket: sport as an international event, with the best players from the world over, but with an Indian team always winning."

This format spread, spawning the Caribbean Premier League, Australia's Big Bash and more. It is this model that the backers of MLC are adopting, reimporting to America what IPL adapted from it. Cricket and baseball have met in the middle on length, but cricket now provides far more action per minute. The average T20 sees between 250 and 400 runs.

Much else has changed in the century and a half since cricket fell out of favour with Americans, not least the meaning of "Americans". In 1920 the United States was 89.7% white, 9.9% black and rigidly segregated. Major League Baseball did not see its first black player until 1947. Today white and black people together make up only 73% of the population, and people with American passports speak every major language. Baseball's biggest star is Ohtani Shohei, a Japanese phenomenon so intent on playing in America that he sacrificed enormous sums to move. The promise of America—in many ways the whole point of America—is that anybody can be American.

To an underappreciated degree, America has kept that promise. In 2019 there were 5.5m South Asians in America, up from 2.2m in 2000 (and just 2,507 in 1920). Indians account for 4.6m, of whom 68% were born outside America. Migrants from cricket-loving former British colonies in the Caribbean—Barbados, Jamaica and Trinidad and Tobago—number another million.

"Every summer the parks of this city are taken over by hundreds of cricketers, but somehow nobody notices. It's like we're invisible," says an Indian origin Trinidadian character in "Netherland", a novel set in New York's cricket-playing milieu in the early 2000s. Of course, he adds, "That's nothing new, for those of us who are black or brown." USA Cricket, which is responsible for developing the sport and selecting the national team, reckons that 200,000 people play cricket across 400 local leagues. Most are indeed black or brown. Today the American men's, women's and under-19s' national teams are composed entirely of American South Asians and West Indians (and one Briton). Five players on the men's squad share the Gujarati surname Patel. "I used to play for teams where everyone would pray to Allah…And then another team where everyone would be like, 'Our Lord, Jesus Christ'," says Joseph O'Neill, the author of "Netherland". Many American clubs, he says, are formed on the basis of origin. Some are all-Jamaican. Others are made up of people from a specific village in India or Sri Lanka.

If passion for cricket is one defining characteristic of Indians in America, another is financial success. The median annual household income for Indian-Americans in 2019 was $119,000, nearly double the national average. Indians are vastly over-represented in Silicon Valley. A few have become wealthy beyond

their dreams. And yet something is still missing.

At the ranch outside Dallas, the millionaires were hosted by Anurag Jain, who owns the Dallas team along with Ross Perot Jr, a billionaire. As a 14-year-old in the southern Indian state of Tamil Nadu, Mr Jain says, he was a "really good" fast-bowler and hoped to play professionally. But one day "My father sat me down and said, 'You know, son, your cricket-playing days are done. I need you to think about being an engineer or a doctor.'" He chose engineering, moved to America for an MBA and succeeded fabulously. But "There was a seed inside me that was unfulfilled."

Another investor is Satya Nadella, the Indian-born CEO of Microsoft, who was not present that day. As a young man he was a spin bowler whose dream "was to attend a small college, play cricket for Hyderabad, and eventually work for a bank," he wrote in his book, "Hit Refresh". A few years after he became CEO, Microsoft announced plans to build a world-class cricket oval on its campus. "When we heard there are a bunch of guys who are thinking about MLC, we thought that there is an opportunity for us to bring the game that we love to this country," says S. Somasegar, Mr Nadella's partner in the Seattle franchise.

The potential rewards are enticing. MLC reckons the domestic television and streaming audience could be as large as 5m. (The founders started and sold a cricket pay-TV channel and streaming service called Willow TV.) The league's backers also hope to persuade India's vast audience to tune in, and are in negotiations with global broadcasters. There will be lots of merch, too.

Venky Mysore, CEO of the Knight Riders, which owns teams of that name in Abu Dhabi, Kolkata and Trinidad and Tobago, says that millions of Indians watch the Caribbean Premier League when his Trinbago Knight Riders play. The Los Angeles Knight Riders will be his fourth team. The real opportunity is "to get the average American fan into it," says Mr Mysore. "And that's a bigger challenge." A further hurdle is presented USA Cricket, which is currently in financial distress because of a covid-afflicted series with Ireland in 2021. More worrying still is that USA Cricket is a relatively new body (it replaced an older, scandal-plagued entity called United States of America Cricket Association). MLC has a commercial agreement with USA Cricket to develop and promote the domestic league.

The English sport is imbued with the ideals upon which America was founded

So how do a bunch of techies and businessmen intend to take on the ghost of Abner Doubleday? Their answer is technocratic. MLC isn't just six major league teams, but also includes Minor League Cricket, a development league with 26 teams, including in places like Sacramento and St Louis. Moreover, MLC is investing in cricket academies to train youngsters and to encourage schools to adopt the sport—a way into the hearts of the American middle class, as field-tested by soccer. MLC will also need to invest in building cricket ovals. Soccer can use American football fields. But there are few cricket grounds in America, and most have lousy batting surfaces and outfields with the wrong grass.

Few, but not none. Around 15 years ago Morrisville, a town of about 30,000 in North Carolina's Raleigh-Durham metropolis, planned to build four baseball diamonds. But cricket was catching on in town, helped by the fact that over a quarter of residents were Asian (today that's nearly half). "So we designed it as a proper cricket venue and set it up," importing clay from Indiana and a pitch curator from New Zealand, says Mark Stohlman, then mayor of Morrisville. Mr Stohlman himself became a convert; he is now a batsman in the local league. At the end of August the ground hosted the minor league finals, in which the Seattle Thunderbolts (mostly Indians and a sprinkling of South Africans) beat Atlanta Fire (Indians and West Indians) by ten runs.



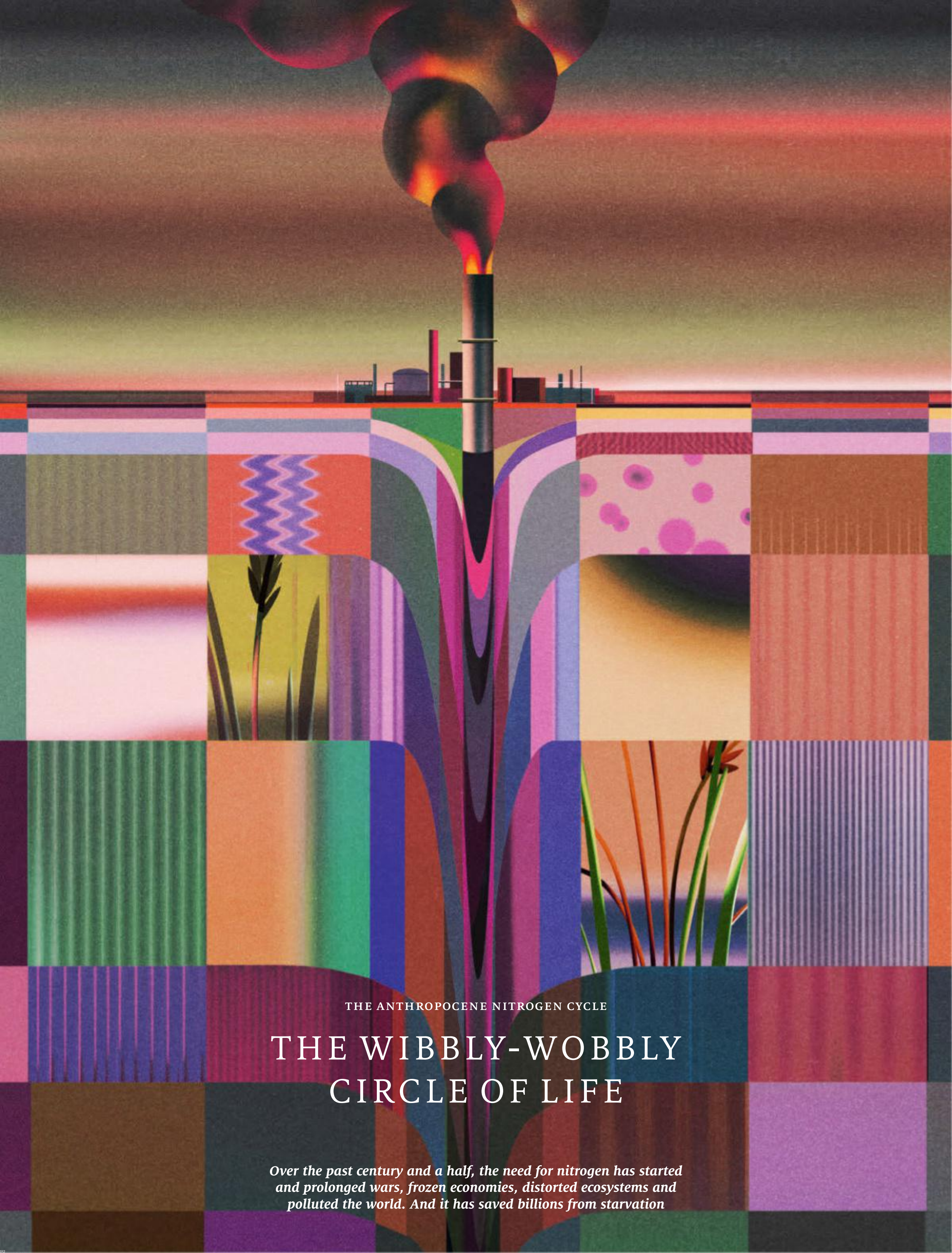
PITCHER PERFECT

This points to one way for cricket to become an American sport: just by being more visible. More grounds mean more matches, which mean more players like Mr Stohlman. "This is a long-term play, it has to start with investing in infrastructure, investing in players," says Vijay Srinivasan, one of MLC's founders. "We know this is not going to happen overnight."

But there is another way to look at it. Perhaps American cricket does not even need a Doubleday narrative. After all, there are millions of cricket-mad South Asians and West Indians who are as American as any baseball fan. Their presence is a powerful enough incentive to lure the MLC investors. The new league, in turn, is already attracting people who would never otherwise have come to America.

People like Unmukt Chand, who led India's under-19 team to a world cup victory, but in 2021 accepted a multi-year contract with the Silicon Valley team. Or Liam Plunkett, an English cricketer, who can now live closer to his American-born wife's family by playing for Philadelphia. Cricketers go to England, Australia or India, too, but for a season, not for a lifetime. "There's opportunities here," says Shadley van Schalkwyk, a South African cricketer in Seattle. "Once you get over a few hurdles in the USA, there is a better finish line."

Seen that way, it matters less whether 330m million people think of cricket as American. By providing opportunity, the prospect of prosperity and, above all, a better future for migrants, the English sport is already imbued with the ideals upon which America was founded. "I cannot be the first to wonder if what we see, when we see men in white take to a cricket field, is men imagining an environment of justice," writes Mr O'Neill in "Netherland". For a lot of this planet's people, that is what America represents, too. ■



THE ANTHROPOCENE NITROGEN CYCLE

THE WIBBLY-WOBBLY CIRCLE OF LIFE

Over the past century and a half, the need for nitrogen has started and prolonged wars, frozen economies, distorted ecosystems and polluted the world. And it has saved billions from starvation

It used to be a marvel; it remains, in its way, a subject of awe. Between the River Tees and the town of Billingham in the north-east of England there is a sprawling chemical works just over 100 years old. In the 1920s, as part of the newly formed Imperial Chemical Industries (ICI), it was feted as a miracle of modernity; to a visiting Aldous Huxley it was "one of those ordered universes that exist...as pure logic in the midst of the larger world of planless incoherence", a forerunner of the sort of future he would explore and deplore in "Brave New World". In the 1940s its strategic importance made it a target for the German Luftwaffe; by the 1960s it employed 20,000 people, the largest plant of its sort in the world.

Today CF Industries, the American firm which now owns the site, employs just 200 people on Teesside. Behind its perimeter fences much of the once thronged area borders on the derelict. But the plant can still fulfil the function for which it was first built. Billingham fixes nitrogen.

"Fixing" nitrogen means turning the element's chemically inert gaseous form, which makes up 78% of the atmosphere, into a more reactive compound. Only after this is done can the nitrogen-containing compounds fundamental to agriculture and industry be created. Plants such as Billingham perform this crucial step by distilling nitrogen from liquefied air and reacting it with hydrogen generated from methane and steam to make ammonia, a gas in which every nitrogen atom is bound to three hydrogen atoms.

The mixture of temperature, pressure and catalysts needed in order to make this happen was first demonstrated by Fritz Haber, a German chemist, in 1909; the means of providing them on an industrial scale were developed by Carl Bosch of BASF, a German chemicals firm. In 1913, at a plant in Oppau, outside Ludwigshafen on the Rhine, the Haber-Bosch process got to work. At the end of the first world war the treaty of Versailles required the details of the process to be revealed to the victors, and chemical engineers descended on Oppau to understand how it might best be copied at places like Billingham. Huxley found the result awe inspiring:

> The scene of [the final transformation] is a huge building...church-like by reason of the silence that reigns there, its solitude and the long line of vast steel cylinders receding, like the columns of a Norman cathedral, into a distant twilight. It is within these cylinders that the mystery is finally consummated. Brought into contact with a catalyst, the hot compressed gases suffer a last sea change. That which, a quarter of a mile away, was air, emerges from the cylinders as ammonia.

> THE HABER-BOSCH PROCESS, FUNDAMENTAL TO FEEDING 8BN PEOPLE, IS ONE OF THE PRECONDITIONS OF MODERNITY

Ammonia has many uses; it can be a cleanser for water supplies or a way of scrubbing toxic gases from exhausts. It is a chemical feedstock that can be turned into nitric acid, necessary for the synthesis of explosives such as trinitrotoluene (TNT), or cyanide, which the chemical industry uses to make polymers such as nylon. And it can be used to make fertilisers.

Poke around on a British farm and you will probably see blue bags of the Nitram-brand ammonium-nitrate fertiliser pellets made in Billingham. If it were possible to poke around inside the crops growing in those farms' fields, you would find that much of the nitrogen they contain had come from such pellets. And if you are a Briton who does source your food almost entirely from organic farms (which eschew chemical fertilisers) something similar is true for you, just as it is for most people in rich and middle-income countries. The human body typically contains a few kilograms of nitrogen, an amount which, lumped together, would weigh about as much as your arm from finger tip to a bit above the elbow. In most people, in most parts of the world, a good kilo of that nitrogen has passed through the reaction vessels of the Haber-Bosch process. A factory-made forearm's worth of flesh.

Without the Haber-Bosch process it is estimated that 30-50% of the world's harvest would be lost; it is fundamental to feeding the world's 8bn people. Like electricity and the internal combustion engine, it is one of the preconditions of modernity.

And just as the fossil-fuel use that has provided most of the world's electricity and mobility has rearranged the planet's carbon cycle, so the drive to fertilise has upended its nitrogen cycle. About 90% of the nitrogen fixed into fertiliser at a plant like Billingham fails to get into humans. Much of it builds up in the environment rather as carbon dioxide builds up in the atmosphere. As with the carbon dioxide, this causes problems. It kills people, reduces biodiversity and affects the climate. Its effects are less disturbing than those of carbon dioxide; but given the scale of carbon dioxide's threat to the climate, that is no great comfort.

Nitrogen fixation is, at the moment, closely tied to that fossil-fuel use; perhaps 2% of fossil-fuel use is in nitrogen fixation plants like Bellingham. And like fossil-fuel use, it ties together disparate parts of the world. That Russia is rich in natural gas, the source of almost all the hydrogen used to make ammonia, as well as phosphorus and potash, other crucial plant nutrients, makes it a fertiliser superpower, the only country in the top-five exporters of all three products, which are often sold mixed together in specific proportions. Its invasion of Ukraine resulted in these fertilisers no longer flowing west to Europe, where farmers use them more efficiently than almost anywhere else.

That drove up fertiliser prices, and when fertilisers have risen in price faster than their crops, farmers often choose to use less of the stuff, reducing input costs to protect their margins, or grow other crops. High fertiliser prices might be expected to stimulate production at places like Billingham. But again, margins matter; Billingham's natural gas now costs more too. And so prices stay high, encouraging farmers to use less and, in poorer parts of the world, increasing the number that use none at all. Politics, pipelines and factories halfway around the world affect the harvest as surely as the sun and rain.

Natural cycles that have been at work for billions of years are now shackled to human politics and economics in ways that span the planet, shape its ecosystems and reach into human nerves and hearts. The notion of an "Anthropocene" world, in which human needs, relationships and politics have reshaped the most fundamental planetary processes, can seem very abstract. Seen through the lens of nitrogen it is as immediate as the meal on your plate.

In 1843, the year *The Economist* was founded, a rich English farmer, Sir John Lawes, started a long-running experiment in a field called Broadbalk. Both beginnings were driven by concerns about wheat. *The Economist* wanted tariffs on wheat imports which benefited English landowners—the Corn Laws—lifted so that free trade could bring down the price. Lawes wanted those landowners and their tenants to be more productive, and thus more competitive, and to make money by helping them become so.

To that end he embarked on a carefully controlled study of the benefits of fertilisers both natural and artificial. On his Rothamsted estate, about 50km (30 miles) north of London, he divided a played-out wheat field into a set of parallel strips, each to be fertilised differently. The study of soils and yields thus begun con-

tinues today, the longest-running experiment in the world.

In the sunny late afternoon of an otherwise rainy October day, Broadbalk's 4.5 hectares (11 acres) of just-ploughed and -seeded soil stretch black and rich up a gentle slope, a ditch at the bottom, a stand of trees at the top. Ian Shield, who manages the agronomy experiments at what is now Rothamsted Research, apologises for the fact that the low sun, the recent ploughing and the residual rainwater make the long-built-up differences between the soils in the various strips hard to discern by eye.

Come spring, though, the difference will be manifest. The strips will flourish according to how they have been fertilised. And those which will do best will be the ones that have received heroic amounts of manure and those which received a lot of Nitram.

When Lawes began his experiment at Broadbalk he was particularly interested in the benefits of a fertiliser produced from bones and sulphuric acid known to work in rich soils, and which Lawes was producing for sale at a works in London. The Rothamsted work showed that, on its own, the concentrated phosphorus in this product did little. When applied along with "ammoniacal salts", however, it achieved a lot, increasing the yield by a third—the same as the improvement provided by rich farmyard manure. As Lawes wrote a couple of years later, in an article enthusiastically reported on by this newspaper:

> The absolute necessity of supplying nitrogen to enable the soil to produce more wheat than it could do in a natural state, is so apparent throughout this series of experiments, that it is difficult to entertain the slightest doubt upon the subject.



Lawes had shown what has come to be known as Liebig's law of the minimum. In his work on agriculture Justus von Liebig, then the world's greatest chemist, argued that plant growth was limited by whichever of their necessary nutrients was in shortest supply; providing more of any other nutrient would be of no avail. In Broadbalk, nitrogen was the limiting nutrient.

The same, it has since been discovered, is true not just in British farms; it is true in most farms across the world, and in most of the world's land-based ecosystems. This is, at first blush, surprising. Billions of years before Haber and Bosch got to work, some types of bacteria had evolved the ability to fix nitrogen from the atmosphere. The supply of other vital nutrients, such as phosphate and potassium, depends mostly on the abundance of minerals which contain them in the rock from which the soil is made; in some places they will be scarce. Nitrogen is available wherever the bacteria capable of fixing it from the atmosphere can live—which means pretty much anywhere.

There are, however, some basic biochemical constraints; life needs a great deal of nitrogen; and fixing that nitrogen requires a lot of energy.

Of the four types of large molecules on which life depends, two—proteins, which catalyse chemical reactions, and nucleic acids, which embody genetic information—are composed of lots of nitrogen-bearing subunits. This means that living things require more atoms of nitrogen then they do of any other element save carbon, hydrogen and oxygen.

One of the reasons nitrogen is such a good building block for big molecules is that nitrogen atoms are capable of forming three chemical bonds to their neighbours. Each nitrogen atom in the backbone of a protein is connected to two carbon atoms and a hydrogen; in nucleic acids they may make one bond to one carbon atom and two bonds to another.

This versatility, though, is inseparable from the chemical quirk that makes nitrogen hard to fix. Nitrogen atoms can use their capacity for making three chemical bonds to tie themselves to each other very tightly. Molecules of N_2, the gaseous form of the element which makes up most of the atmosphere, are pairs of atoms which share such a "triple bond"—the threefold strength of which explains why prying them apart in a Haber-Bosch reactor requires high pressure and a lot of heat.

Bacteria are far better chemists than Haber, Bosch or any of their human successors. The catalyst they use to fix nitrogen, a protein called nitrogenase, has been fashioned by evolution to do so without high temperatures and pressures, twisting and coaxing the molecules apart rather than breaking them with brute force. That said, it is complex to make, fussy about its working conditions (it cannot abide the presence of oxygen) and an energy hog; keeping it going requires a lot of metabolic juice. The ability to fix nitrogen thus extracts a high price from the bacteria that do it.

Adding nitrogen to an ecosystem is hard work; losing it from one is distressingly easy. Fires remove nitrogen more thoroughly than they do other nutrients (it is because potassium is left behind when the fire is done that it is called, in agricultural applications, potash). Water leaches soluble forms of nitrogen out of soils when other elements prove more recalcitrant. And there are also bacteria which, instead of making fixed nitrogen, feed on it, eventually turning it back into N_2 or N_2O—nitrous oxide, also known as laughing gas—and returning it to the atmosphere.

Evolution has encouraged other organisms to support the nitrogenase using ones in their endeavours. Many plants exude sugars to feed the nitrogen-fixing bugs in the soil; some, the legumes, build up symbiotic nodules—rhizomes—in which the bacteria can fix their little socks off. Some 19th-century crop rotations included legumes as a way of restoring nitrogen, and Lawes recommended them. He also saw that wheat's need for nitrogenous manure meant those rotations should contain fodder crops so the farm's livestock could produce an adequate amount of it. The ammoniacal salts bought from chemists to use at Broadbalk were all very well for experiments, but there was nothing like enough of them for the industry as a whole.

Change, though, was afoot. As anyone who has stood too long beneath sea gulls can attest, birds can be very good at depositing nutrients from the oceans thick and white upon the land. The best such deposits in the world, at that time, were those on islands off the west coast of South America. The nutrient-rich upwelling waters of the Humboldt current make the seas there peculiarly fecund, and persistent high pressure makes the climate particularly dry, allowing droppings rich in concentrated nitrogen, phosphate and potassium to build up for centuries.

In 1840 the Peruvian Republic granted Don Francisco Quiroz, president of the Lima chamber of commerce, a monopoly on the exploitation of the guano on the shittiest of its islands, the Chinchas. He was backed by British and French investors who knew that men of science, such as the current's namesake, Alexander von Humboldt, spoke highly of the stuff.

In March 1841 a ship called the *Bonanza* unloaded the first reeking cargo of guano in Liverpool; all told, 8,000 tonnes were imported that year. By the end of the decade the tonnage was 70,000. In 1847 Lawes calculated that if farmers were to provide the wheat fields of Norfolk with as much nitrogen as was made available by crop rotation using guano instead, they would have to apply 76,000 tonnes. Within ten years Britain imported three times that amount every year. Guano had gone global.

This was the pivotal moment in what Francis Thompson, a British historian, called the "second agricultural revolution"—the shift, as he put it, from farming as a sort of extraction to farming as a sort of manufacture. Before, farms had been akin to living mines, their production limited but self-renewing. After, they became more like factories, their owners and managers concerned with inputs as well as outputs. The essentially local and closed nature of the farming economy was opened up—as it had to be, given the fact that fewer and fewer people were living on the land.

Britain, in the fore of this second revolution, was initially the main market for Peru's "white gold"; but America and continental Europe followed. In 1856 America's Guano Islands Act made it a national policy that claims which citizens staked to uninhabited guano-coated islands would be protected by the navy. The objections of those who saw such seizure as a route towards the imperialism which the republic so detested in others were waved aside.

When, by the 1860s, many of the best guano deposits had been depleted, the trinity of nutrients it had provided in a user-friendly bundle began to be procured singly. Phosphate came from bones and fossilised dung. Potash was produced in the backwoods of Canada; after the discovery of huge deposits of potassium-bearing mineral salts in Prussia it was mined, too.

As for nitrogen, most came from mineral deposits in the Atacama Desert, not that far from the guano islands off Peru. In 1879 competition for control of the nitrate deposits saw a war break out between Bolivia, Chile and Peru. Chile won, and for the rest of the century it completely dominated trade in fixed nitrogen.

But its supplies were not unlimited. In 1898 (the year America's guano-begotten non-imperialist expansion across the Pacific saw it annex Hawaii and the Philippines) Sir William Crookes, a chemist, alerted the annual meeting of the British Association for the Advancement of Science to a coming nitrogen crisis. Crookes noted that the number of people around the world gaining sustenance from bread, and thus wheat, had been 371m in 1871. Less than three decades later the number was 146m larger. And it was continuing to grow exponentially; in another 30 years there would be 230m more.

Existing means could not meet such demand. Crookes believed the world to offer no great new tracts of land suitable for wheat farming. And at the then current extraction rate of 1m tonnes a year, Chile would run out of nitrate within a generation or so.

Replacing wheat was not an option. "The accumulated experience of civilised mankind", Crookes wrote, had "set wheat apart as the fit and proper food for the development of muscle and brains." If the world was forced to depend on lesser grains like rice and maize, "races to whom wheaten bread was not the staff of life" would squeeze the "Great Caucasian race…out of existence".

That made the fixation of atmospheric nitrogen "one of the great discoveries awaiting the ingenuity of chemists…vital to the progress of civilised humanity". On the basis of the latest figures from Rothamsted he calculated that eventually as much as 12m tonnes a year would be needed.

There was, as Crookes mentioned in an aside, another imperative, too. The chemists of the second half of the 19th century had not restricted themselves to plant nutrition and dyes. They came up with a range of compounds in which, if given the right push by a detonator, nitrogen atoms would quit their places tied to oxygen atoms in order to form triple bonds with each other, thus creating a hot, rapidly expanding explosion of N_2, carbon dioxide and steam. Nitroglycerine, stabilised in the form of dynamite, was revolutionising civil engineering. In guns, the development of "smokeless powders" that produced much less soot than old-fashioned gunpowder made it possible for the gases produced when one bullet was fired to drive a mechanism which would chamber the next. Such automatic weaponry chewed through flesh, and used up ammunition, as never before.

The increasing military need for fixed nitrogen driven by these developments was particularly worrying to Germany. Imperial ambition was near its peak, making war with one or more of Europe's other great powers more and more likely. The chemical industry was acutely aware that its imports from Chile came mostly through British traders—and that even if that were to change, the Royal Navy could stop the trade by force. Hence the urgency with which Haber's discovery was industrialised.

The Haber-Bosch process is widely taken to have prolonged Germany's ability to fight the first world war. It also made possible the extremities of the second, including the murder of more than a million in Auschwitz by means of Zyklon B, an industrially produced form of cyanide. It has been calculated that 6m tonnes of high explosive were used in that war, and that over the 20th century explosives used in war killed as many as 150m people. Internal-combustion engines may have driven the tanks, planes and ships. Fixed nitrogen made them into killing machines.

The effects of industrially produced nitrogen fertilisers were not so quickly felt. By the 1930s Billingham, a wonder when opened the decade before, had come to be seen as a drain on ICI's resources. The gains in agricultural productivity seen in the first half of the 20th century mostly came from the mechanisation of field work by tractors, combine harvesters and the like.

> BIRDS CAN BE VERY GOOD AT DEPOSITING NUTRIENTS FROM THE OCEANS THICK AND WHITE UPON THE LAND

In the second half of the century, though, nitrogen really came into its agricultural own, and plants like Billingham became Anthropocene farming's *umbilici mundi*. The biggest factor in this was that plant breeders—notably Norman Borlaug, working in Mexico for the Rockefeller Foundation—learned how to breed crops particularly adept at growing in highly fertilised soils. The task was, again, an urgent one. The population was growing quickly, the risk of famine was taken to be high. And, again, it had geopolitical ramifications; American policymakers treated feeding Asia with a "green revolution" as a way of averting the possibility of red ones.

Crops better at using nitrogen drove demand for nitrogen and other fertilisers; abundant nitrogen drove demand for crops better at using it. As new strains became available yields and nitrogen use climbed inexorably; yields in India more than tripled between 1960 and 2000. By the end of the century the researchers at Rothamsted were finding that roughly 80% of the new varieties' impressive yield was down to nitrogen fertiliser.

Human industry now fixes about 150m tonnes of nitrogen every year; more than all the bacteria in all the soils of all the world.

On one side of Grebbeweg, a road just outside Veenendaal in the central Netherlands, there is a bright grassy field. On the other side, a meadow known as Hell. A nature reserve just a few hectares in area, in the early winter De Hel has, at best, a melancholy charm. The surface is waterlogged, the foliage an array of the world's least vibrant shades of green. In spring, though, says Wieger Wamelink, an ecologist from nearby Wageningen University, it sparkles with orchids and buzzes with insects, an ecosystem revived thanks to what its soil now lacks: nitrogen.

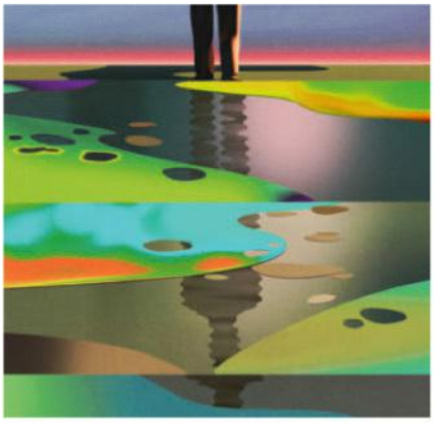
The natural nitrogen cycle balances itself; over time the ▸▸

amount of nitrogen fixed from the atmosphere by bacteria equals the amount of nitrogen stripped out of compounds in the soil and water and returned to the air as N_2 by "denitrifying" bacteria.

In their eagerness to fertilise the land humans substantially increased nitrogen fixation around the world while doing nothing to increase the rate of denitrification: it currently runs at only 40% or so of the rate at which nitrogen is added to the environment. As a result, fixed nitrogen is building up in the planet's soils and waters, as carbon dioxide is building up in its atmosphere.

And humans have fixed nitrogen unwittingly, too. The innards of internal-combustion engines get hot enough to burn some of the nitrogen in the air they take in along with their fuel. Forest fires and biomass-burning put nitrogen from plants back into the air, too. The total tonnage produced this way is a lot lower than the amount of nitrogen fixed for use as fertiliser, but it adds disproportionately to some of the problems: nitrogen oxides created this way go directly into the air, which is where they do the most harm to human health.

Airborne nitrogen oxides increase the concentration of ozone, which at ground level is a threat both to human health and to the health of crops. Roughly 60% of the increase in ground-level ozone seen across the 20th century can be associated with nitrogen-oxide emissions, and current levels of ozone are held to be shortening over 150,000 lives worldwide every year. According to Wim de Vries, another researcher at Wageningen, they are costing the world between 3% and 16% of its cereal production. They can also create little aerosol particles that damage lungs, sometimes reacting with ammonia to produce tiny particles of ammonium nitrate; in cities, roughly 30% of the smallest, most-damaging particles contain nitrogen. Though car exhausts dominate the production of these particles, modelling suggests that halving Europe's agricultural emissions would reduce the number of lives shortened by particulate air pollution on the continent by 19%, sparing some 70,000 lives a year.



Eventually almost all of this airborne effluvium comes to the earth, there to join the nitrogen added by farmers but spurned by their crops. Unlike the carbon dioxide in the atmosphere, the nitrogen in the soil does not just accumulate. It builds up in particular places; it acidifies soils and it changes its chemical form. It does stuff. It might return to the atmosphere as ammonia, or nitrous oxide; it might dissolve in run-off as a nitrate ion and travel through streams and rivers to the sea. Nitrogen given up by the soil in the form of ammonia in one place can create an ammonium-nitrate particle in the atmosphere, then fall back to Earth to fertilise a plant hundreds of kilometres from where it started. After that plant dies and decays, the nitrogen finds a bacterium keen to turn it into nitrous oxide, in which form it then rises to the stratosphere. A century later—over the span of which, because nitrous oxide is a powerful greenhouse gas, it will have warmed the planet 300 times more than a molecule of carbon dioxide would—a stray photon of ultraviolet light turns it back into an ion, chemistry turns it into nitrogen dioxide and rain washes it back to the soil.

One overarching aspect of this superabundance is the reduction of biodiversity. Dr de Vries reckons that nitrogen deposition is, after habitat destruction and climate change, the third greatest destroyer of biodiversity in the world. A principal reason for this is that some plants are better at using nitrogen than others. If nitrogen levels are increased the plants that are good at using it get a bigger boost than the rest, and outcompete them. Overall biomass may well increase; biodiversity does not.

The most spectacular examples of this effect are the dead zones now frequently found where rivers that drain large agricultural basins flow out into the sea. Nitrogen and phosphorus from farmlands stimulate exponential growth in some species of algae, which bloom until they have used up all the oxygen in the water. Creatures from throughout the water column either die or come to the surface—there to die at a later date. Over the second half of the 20th century such dead zones became ten times more common as nitrogen flows into the sea from farming grew by about half.

On land the same dynamics play out more subtly. The difference between the orchid-free field dominated by a single type of grass on one side of Grebbeweg and the multi-hued complexity on the other side is that the nitrogen stocks of De Hel have been systematically reduced, allowing species which are less good at using the nutrient to hold their own better. To restore the nature reserve to a pre-industrial state, conservationists stripped it of its topmost layer of soil, in which most of the residual nitrogen was to be found. They also started mowing it in early summer when the growing blades of grass are nitrogen rich and making hay thus removes more nitrogen than it would at other times.

For all this, De Hel still contains more nitrogen than it would have centuries ago, when its sodden infertility won it its disparaging name. And the amount is increasing, as more nitrogen is deposited from the air. The same is true for most Dutch nature reserves, and that has plunged the country into a complex and peculiarly anthropocene crisis that feels like a forerunner of the future world.

After the famine the Netherlands suffered during the last winter of the second world war, boosting food production became a national priority, and that urgent desire for self sufficiency produced farms that could expand on the country's historical success as a dairy exporter. Today the Netherlands, which houses roughly 0.1% of the world's cows on just 0.008% of its land surface, produces 4% of its cheese. The remarkable productivity comes from fertilised meadows and protein-rich concentrates which provide the cattle with all the nitrogen they can use and more—a surplus they get rid of. Cowpats and piss, particularly when mixed and left on the floor of a shed, are a potent source of ammonia.

In 2015, after booming Chinese consumption saw enduring concerns about overproduction ease, European Union caps on dairy production were lifted and farmers invested in new cows and cowsheds. These expansions received permits as part of the Dutch government's "integrated approach to nitrogen", the PAS, under which any activity which will lead to nitrogen deposition, including building new homes, needs a permit, and new permits are in principle balanced out by reduced emissions elsewhere. In 2018, the European Court ruled that the PAS permits were not limiting nitrogen deposition on nature reserves as well as EU law required. As a result of that decision, the next year the Dutch high court ruled that no new permits could be issued. No farms could expand; no new building works could be undertaken. According to ABN AMRO, a bank, projects worth €14bn ($15.7bn) were put at risk.

The government made room for some construction permits to be issued by cutting the speed limit on the country's motorways from 130kph to 100kph, thus modestly reducing nitrogen-oxide emissions from cars. But it also realised that it needed to do something about ammonia from farms, which accounts for far more of the total deposition. Fearing for their future, dairy farmers staged protests, with tractors blockading city streets (and the Wageningen campus) and muck spread around ministers' houses.

At the end of November 2022 the government sketched out the

latest of its approaches to the problem. It will look to 2,000 to 3,000 farms in particularly sensitive areas to volunteer to be bought out. It will encourage other measures to reduce ammonia production, including more outdoor grazing and lower-protein concentrates in food. Jan Willem Erisman of Leiden University says that, in principle, this could be a way out of the immediate crisis—but warns that much could still go wrong. And in the longer term, Dutch farmers are not wrong to worry about a world in which their practices come under increasing pressure, and in which the country's total herd is significantly reduced.

The Netherlands has a particular history and geography, with soils vulnerable to ammonia-induced acidification and the sort of dense settlement to be expected around the delta of a major river such as the Rhine. Its situation has been shaped by the quirks of Europe's common market, subject to one-of-a-kind transnational regulation, and the possibilities implicit in a world-trade system which makes it easy to source nitrogen-rich concentrate from around the world and ship dairy products to whoever most wants them. And it reflects a distinct set of regulatory choices on arcana such as the maximum permitted nitrogen-loading per hectare for various ecosystems and whether a bulldozer's emissions matter more when starting a new project than when finishing an old one.

But it is a particular instance of a pervasive set of issues: how to deal with the fact that human politics and regulations are now intimately involved in the flows of the fundamental stuff of life on a scale that has impacts throughout the living world. The archetype of these issues is that of carbon dioxide. Yet it is also, at the moment, a conceptually simple one; the primary prescription is to decouple human industry from the carbon cycle by renouncing fossil fuels. The means of doing this lie within the human world of economics and politics: do things differently or do things less.

Nitrogen is different. You cannot feed 10bn people without providing them with nitrogen, and choices made about how that nitrogen is provided will change life off farms as well as on it—not least because, if you use less nitrogen, you will tend to use more land. In most of Africa, the fastest growing continent, nitrogen remains as yet too scarce. How is it to be made plentiful without a recapitulation of the problems it has caused elsewhere?

A world which ate fewer animals would have less of a problem, because the conversion of plant protein to animal protein is notoriously inefficient, as the ammonia rising from cowsheds makes clear. But it remains the case that, to many (including many who currently enjoy only very little access to meat), life in a meat-free world is as hard to reconcile with ideas about the good life as Crookes thought life in a wheat-free world was.

So if a modern-day Crookes were to survey the world of nitrogen surplus as their predecessor did the world of incipient nitrogen shortage, with what mission should they charge their fellow scientists? A reversal of what happens at Billingham—industrial denitrification on the same scale as industrial nitrogen fixation—is not possible. The nitrogen molecules in the mostly-nitrogen atmosphere are infinitely fungible; whether you distil them from the air over Teesside or Maharashtra makes no difference. The fixed nitrogen is doing more harm in some places than others. And even when it is concentrated, it is very diffuse. Fixation can start with an atmosphere that is 78% N_2. The pollutants denitrification would need to deal with are measured in parts per billion.

Instead, look at moving from a macroscopic human intervention in the cycle to a microscopic one: enlist the bacteria as allies. Pivot Bio, an American startup, has identified strains of nitrogen-fixing bacteria with which seeds can be treated before they are sown in order to ensure that there is lots of nitrogen fixation going on in the soil where they set their roots. Bayer, an agrochemical giant, has been working with Ginkgo, the only big synthetic-biology firm, to design bacteria that might do even better, and could be added to seed before it was sold. In theory such treatments could provide crops with as much nitrogen as they get from current fertilisers while losing much less to the surrounding environment.

Biologists armed with new gene-editing techniques have a more ambitious scheme: endowing plants that are not legumes with the means to build rhizomes, the symbiotic nodules in which legumes host their own bespoke colonies of nitrogen fixers. This is hard. It requires not just developing the genetic circuits needed to build the right structures, but also those needed for plants to lure the bacteria into those structures and respond to their needs.

Giles Oldroyd, who leads an effort to this end at Cambridge University, sees it as a question of setting up a dialogue between forms of life divided by billions of years of evolution. That gives the science a pleasing symbolic resonance with its possible application, breaking down the binary of plant and bacteria in order to help bridge the rift between natural and industrial.

A world in which the human interaction with the nitrogen cycle is dominated not by a few hundred Haber-Bosch plants, or a few hundred million car exhausts, but instead farmed out to countless trillions of bacteria in soils and rhizomes would be more efficient and responsive, making the adaptation to local conditions that is hard for users of today's fertilisers far easier.

> BREAKING DOWN THE BINARY OF PLANT AND BACTERIA HELPS BRIDGE THE RIFT BETWEEN NATURAL AND INDUSTRIAL

Bulk production of ammonia might still go on, perhaps on a far greater scale. It is possible that in a post-fossil-fuel world hydrogen made by splitting water electrically could be traded internationally. And because liquid hydrogen is tricky stuff, some think that trade may take the form of ammonia; use the hydrogen for Haber-Bosch in one place, transport the resultant ammonia over an ocean in a tanker, crack it back into hydrogen and N_2 at the end point. But such a trade would be designed to bypass life's nitrogen cycle, putting all the inert nitrogen sucked up at one end back into the air at the other.

In feeding plants and preserving nature there could be ever more care to national circumstances, local soils and particular seeds. Not exactly a repudiation of the muscular, commoditised modernity that Haber-Bosch made possible, allowing the agriculture of inputs and outputs to go global. But a radical rethinking of it, one suited to an age where biological ways of doing things are becoming more important than chemical ones, and where the environment is treated as part of the process, not just a resource to strip and a dumping ground for what has not been used.

Ambivalent as he was about the planned world he thought it heralded, Aldous Huxley saw in Billingham:

> a vast co-operative work of art, the joint product of many separate creations, the visible manifestation, in a single co-ordinated whole, of countless individual thoughts…a poem of which the technicians and administrators are joint authors.

The Anthropocene nitrogen cycle is nothing like a work of art, let alone a good one—not yet. It is overwrought, deformed and damaging, shaped by necessity and desire, not care or grace. But it is, happily, a work in progress. At the level of the field and the world, jointly authored by farmers, citizens, microbes, landscapes, consumers, forests, scientists and fields, not to mention technicians and administrators, it may yet achieve a poetry of its own. ■



THE ECONOMICS OF THINNESS

THE WEIGHT OF THE WORLD

NEW YORK

It is rational for ambitious women to try as hard as they can to be thin. That is a tragedy

Mireille Guiliano is a slim and successful woman. She was born in France and studied in Paris before working as an interpreter for the United Nations. She then worked in the champagne business and in 1984 joined Veuve Clicquot whose performance was, at the time, rather flat. She fizzed up the ranks and launched their American subsidiary. In 1991 she became its chief executive and ran it with great success. In her apartment overlooking downtown Manhattan, she offers a glass of water before quipping "You know how much I love water." She is correct; drinking plenty of water is a key rule in "French Women Don't Get Fat", her bestselling book on how to lose weight and stay slim "the French way".

In the book she describes her discomfort when as a teenager she gained weight while spending a summer in America. Her uneasiness comes to a head when she returns home to France and her father, instead of rushing to hug her, tells her she looks "like a sack of potatoes". She goes on a new diet plan, remembers her old French habits (lots of water, controlled portions, moving regularly) and tips the scales back in her favour.

As a successful woman who is willing to talk publicly about her appearance and her weight, Ms Guiliano is rare. "Of course no one wants to talk about it," she says. "It is much easier to pretend it comes naturally." Successive waves of feminism have told smart women they should have emancipated themselves from vanity—as they have from domestic servitude and an existence defined by procreation.

But as a woman greatly affected by a comment about her weight she is not rare. Aubrey Gordon, the co-host of the Maintenance Phase, a podcast which unpicks the problems with modern weight loss and wellness, was told by a doctor that she was overweight aged just ten. Roxane Gay, an American writer, describes the shock on her parents' faces when she returned home from her first term at boarding school, aged 13, weighing 30 pounds (around 14 kgs) more than she did when she went away.

These experiences are deeply personal but also universal, at least in the rich world. They reflect the pressure on women to look like an "ideal". That ideal has changed over time. Renaissance nudes boast ample curves. But in more recent decades it has been defined by thinness. In the 1980s in New York it was the "social x-ray", a term coined by Tom Wolfe in his novel "Bonfire of the Vanities" to describe women so slight they existed only in two dimensions. This morphed into the "heroin chic" ideal of London in the 1990s.

Today the perfect body is the "weasel bod", says one Los Angelena, who is surrounded by women seeking physical perfection. These women strive to look streamlined and sleek, like a weasel, as though they could slip through water without disturbing it. Pursuit of such a body might permit a little more food than the regimes of the past but it is just as difficult to attain.

All women eventually recognise the importance placed upon their bodies. It is as though girls are walking through a forest unaware and are then shown the trees. They can wonder how the trees got there, how long they have been growing and how deep their roots really go. But there is little they can do about them and it is almost impossible to imagine the world any other way. And the fiction that clever and ambitious women, who can measure their worth in the labour market on the basis of their intelligence or education, need pay

no attention to their figure, is difficult to maintain upon examination of the evidence on how their weight interacts with their wages or income. The relationship differs in poor countries where rich people are generally heavier than poor ones.

Wealthy people are thinner than poor ones in countries such as America, Britain, Germany and rich Asian countries, such as South Korea. There is typically a gently downward sloping relationship between most measures of weight, like body mass index (BMI), a measure of obesity, or the share of a population that is obese, and income, as measured by wages, the share of people below a poverty line or their income quartile.

That poor people are more likely to be overweight has often been explained by arguments that obesity, in the rich world, is a feature of poverty. Poor people may struggle to afford healthy foods. They may reach for processed or fast foods because they lack the time to prepare meals at home or have less time to exercise because low-wage jobs often involve working long shifts and can be less flexible than those performed by the "laptop class". Or because low income is often a function of limited education, perhaps, so goes the thinking, that lack of education extends to a lack of knowledge about how to maintain a healthy weight.

The problem with all of these explanations is that the correlation between income and weight at the population level in advanced countries is driven almost entirely by women. In America and Italy the relationship between income and weight or obesity is flat for men and downward-sloping for women. In South Korea the correlation is positive for men but this is more than offset by the sharply negative correlation in women. In France the relationship slopes gently downwards for men, but the slope is much steeper for women. These kinds of patterns seem to hold across most rich countries and appear robust to various ways weight or obesity might be measured.

THE DUCHESS'S DECREE

In other words, rich women are much thinner than poor women but rich men are about as fat as poor men. Wallis Simpson, whose marriage to King Edward VIII prompted his abdication, is supposed to have said that a woman "can never be too rich or too thin". Apparently she must be both or neither.

That should give pause to anyone who thinks that poverty can explain why people are overweight or obese, or that being rich helps people to maintain a lower weight. You must then explain why those dynamics seem only to affect women. Perhaps the relationship would look the same for both sexes, but the occupations they do that require or might result in slimness differ. Men disproportionately do lower-paid physically active jobs, like construction (although nurses spend as much time walking or standing as builders, and are disproportionately women). Some rich women, such as actresses, might be explicitly required to be thin to play certain roles.

Still, it is hard to believe that either dynamic explains the entire difference. Data from the American Bureau of Labour Statistics (BLS) suggest that just 3.5% of civilian workers do intensely physical jobs (and some of those categories, like exercise instruction and dancing, employ plenty of women). Only 0.1% of workers do jobs such as acting. That there is a gender gap in the relationship between income and weight, which cannot easily be explained by other differences between men and women, indicates another explanation: perhaps being thin helps women become rich.

The stigma against overweight people has grown with their number

Myriad studies which find that overweight or obese women are paid less than their thinner peers while there is little difference in wages between obese men and men in the medically defined "normal" range. There are exceptions: one Swedish study found that obese men were paid less, but obese women were not. But research in America, Britain, Canada and Denmark suggests that overweight women do have lower salaries. The penalty for an obese woman is significant, costing her about 10% of her income.

This might understate reality because it is hard to measure the wage gap for someone who was not offered employment because of their size. The upper estimates of the wage premium for a women being thin are so significant that she might find it almost as valuable to lose weight as she would to gain additional education. The wage premium for getting a master's degree is around 18%, only 1.8 times the premium a fat women could, in theory, earn by losing around 65lbs—roughly the amount that a moderately obese women of average height would have to lose to be in the medically defined "normal" range. The penalty appears to be particularly significant for white women—evidence for black or Hispanic women is weaker (though could be explained in part the fact that studies often use BMI which can misclassify these women).

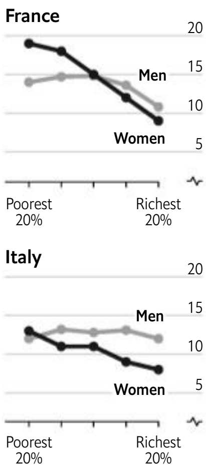
Discrimination against fat women has not diminished as their numbers have risen. "We might expect a declining penalty due to the increase in the percentage of overweight individuals," wrote David Lempert, an economist, in a working paper for the BLS, because it has become more normal to be overweight. Instead the stigma against overweight people has grown with their number; it almost doubled between 1980 and 2000. He suggests this may be because "the increasing rarity of thinness has led to its rising premium."

The conclusion of the paper layers one infuriating sentence on top of another. As larger women age, he writes, they incur the effects of years of cumulative wage discrimination. Controlling for other factors, their starting wages are lower. Throughout their working careers, these women receive fewer raises and promotions. His paper shows "that an obese 43-year-old woman received a larger wage penalty in 2004 than she received at 20 in 1981," and also that "an obese 20-year-old woman receives a larger wage penalty today than she would have in 1981 at age 20."

This might reflect, in part, the higher costs that obese employees might impose on their employers, especially in America. Health-insurance premiums in America are often paid by employers, and very overweight or obese people tend to incur higher costs, partly because they suffer more health problems as they age. Still, it is unclear why these costs would be passed on only to women. And studies in Canada and Europe (where government-funded health care is the norm) find similar sized wage penalties for women.

Meanwhile, the idea that the penalty for being obese might be rising, not falling, is backed up by the data from the "implicit bias" test run by Harvard University. It asks test-takers to associate people of different races, sex, sexual orientation or weight with words like good or bad. And in general the findings are trending in a positive direction—discrimination on the ba-

Obese adults*
by income quintile, 2019, % of total



*BMI of 30 and above
Source: Eurostat

sis of race and sex has fallen over the last decade. Negative associations of gay people have fallen by a third. Weight is the exception—attitudes towards heavy individuals have become substantially more negative.

In this context the arguments often made for why women and girls feel such pressure to be thin and suffer from low self-esteem when they are not appear woefully incomplete. Perhaps women do feel bad about themselves because they compare themselves to the gazelles that populate the covers of magazines and are duped into thinking those photos are unedited and attainable. Maybe their parents or a doctor commented on their weight when they were young. But in addition to those pressures is the powerful incentive of the market: women accurately perceive that failing to lose weight or be thin will literally cost them.

It is economically rational for everyone to devote time to education because it has clear returns in the labour market and for future wages. In the same way it appears to be economically rational for women to pursue being thin. Obsessing over what and how much to eat and paying for fancy exercise classes are investments that will bear returns. For men they are not.

To some extent women know this. A generation ago they seemed to take it for granted. "The most basic thing to get on with after your job—or during it—is how you look and feel. It is unthinkable that a woman bent on 'having it all' would want to be fat, or even plump," wrote Helen Gurley-Brown, the editor of *Cosmopolitan* magazine in the 1980s and 1990s in her book "Having It All", before rattling off advice about how to survive on 800 calories a day, encouraging women to weigh themselves daily and to accept that "dieting is *hell* and stop getting depressed about it!"

Such attitudes were more acceptable four decades ago. But the economic reality does not seem to have shifted much. All that has changed is the narrative, which has embraced body positivity and shunned dieting. Instead of the South-Beach diet or Atkins women eliminate foods—becoming gluten-free, vegan,



The perception of total control is misguided

low-sugar—under the guise of health or wellness, to improve their gut health or raise their energy levels. People spend large sums to attend Soul Cycle classes, a kind of boutique indoor cycling, to be strong and fit, not to burn calories. "Even glossy women's magazines now model scepticism toward top-down narratives about how we should look…but the psychological parasite of the ideal woman has evolved to survive in an ecosystem that pretends to resist her," writes Jia Tolentino in her book "Trick Mirror". Feminism "has not eradicated the tyranny of the ideal woman but, rather, has entrenched it and made it trickier."

Because being very obese comes with elevated health risks, some might argue it is not a problem that there are incentives for women to lose weight. But this relies on two wobbly pillars of logic. First, that people's weight really is within their control. And second, that shame is an effective motivator.

Most people have experienced the effect that eating a little less and moving a little more has on their physical form and so it is common to think that weight and obesity is a mutable trait—one that slim people work to achieve and fat people fail to achieve. If this were the case, then it might seem possible for women to opt out of discrimination on the basis of weight, by conforming to the body type society demands of them.

Yet the perception of total control is misguided. People often report gaining weight when they start taking antidepressants; women tend to if they suffer from conditions such as polycystic ovarian syndrome. Ms Gay describes how her weight gain occurred in the aftermath of a brutal sexual assault. It also raises the question of why a great slice of humanity collectively lost control of their eating habits in the 1980s, when obesity rates began to soar in developed countries. Scientists are unsure of the answer (some point to the rise of processed foods) but they do agree that it is almost impossible to lose weight and stay smaller—and people who achieve this are far rarer than those who spend their lives trying, failing and blaming themselves.

Perhaps shame can work for some people, on the margin. It worked for Ms Guiliano. When asked why her reaction to her father's comment was to decide to lose weight, rather than to tell him off, she pauses for a moment. "But, of course," she says, "he was right."

TOO HIGH A PRICE

But think, too, of the huge cost that the stigma, shame or the fear of becoming overweight has on all of the women and girls who spend their lives worrying about what becoming that way might cost them. It is impossible to move around the world as a woman and not notice the time, energy and investment women make in logging the food they eat, reading diet books and attending exercise classes. Anyone who has tried a juice cleanse or a cabbage soup diet will know that the pursuit of thinness can come at the expense of other important things girls and women might want to do, like being able to focus on exams and work or enjoy food.

According to some surveys, girls as young as six recognise the expectation that they should be thin. Then adolescents "overwhelmed by sudden expectations of beauty, transmit anorexia and bulimia to one another like a virus," writes Ms Tolentino. The tragedy is that there is no escape. Most women seem to try to conform. Some choose not to. Many simply fail. But whatever path is taken, it seems to come at a great cost. ■



CATTLE AND THE HINDU RIGHT

THE MYTH OF THE HOLY COW

MUMBAI

India's movement to protect cows is rooted in politics, not religion

THE LYNCHING began with an announcement over the loudspeaker of the local temple: a calf had been slaughtered. It was 28th September 2015, around the Eid holiday, and Hindu-Muslim tensions were running high in the village of Bisara in the Indian state of Uttar Pradesh (UP). The broadcast roused the village's Hindu residents, who consider the cow sacred. They were convinced one of a handful of Muslim families in Bisara, the Akhlaqs, had slaughtered the cow for Eid.

Late in the evening, dozens of rioters broke into the Akhlaqs' home and found meat in the refrigerator. They could not be sure it was beef, but that didn't matter. They smashed a sewing machine over Danish Akhlaq's head. Then they grabbed the patriarch, Mohammed, and dragged him outside, his head crashing down 14 stone steps to the street. By the time the police arrived half an hour later, he was dead.

Justice is yet to be served. Most of the 18 accused are out on bail. Four were given front-row seats at a rally held by Yogi Adityanath, the fiery Hindu priest who runs UP. One died in custody and received a martyr's send-off, Hindu nationalist politicians descending on Bisara to pay their respects. Prime Minister Narendra Modi has not taken much notice. His first remark on the murder, eight days after it took place, was a call for Hindus and Muslims to unite.

India's prime minister has a fixation with cows. Under his Bharatiya Janata Party (BJP), they have become a symbol for the struggle to remake India as a

India's cows have become pawns of the Hindu right

Hindu state. To eat beef or not to eat beef has become the question dividing the country's billion Hindus, who protect cows because they revere them, and its 200m Muslims, whose religion permits them to eat beef and sacrifice cows. More than class or caste, this distinction stirs passions and wins votes.

Most of India's Hindus share the belief that slaughtering cows is sacrilegious. Thus protected, cows have multiplied to the point that India has more cattle—over 300m, according to the United States Department of Agriculture—than any other country. Cows sashay down motorways, causing accidents. They gnaw at whatever pastures they come across, to the consternation of small farmers. And they excrete everywhere.

No matter. Hindus are unwavering in their devotion to *gaumata,* or mother cow. Historians have puzzled over this. Why and how did the humble cow, not the majestic elephant or the fearsome tiger, become holy? The theological basis for its elevation is mixed. Indeed, veneration of the cow has often had less to do with achieving success in the afterworld than with acquiring and holding political power in this one.

Ask Hindus why they consider the cow sacred and they will probably wax lyrical about the sustenance it provides. The typical Indian family consumes copious amounts of milk—not skimmed or lactose-free but the good stuff, so thick and creamy that it exudes the sweet smell of butter when heated. Visit a Hindu temple and you will see cows everywhere. Statues of them are draped in marigold wreaths and multicoloured shawls. There is often a shelter on site where priests feed and bathe cows. Worshippers give generously towards their care, hoping for good fortune in return.

Yet religious texts are ambiguous on the question of cows. Few Hindus today read the Vedas, the books considered the fountainhead of Hindu wisdom. If they did, they would be gobsmacked. Sure, the cow is admired, mentioned more than any other animal except perhaps the horse. In the Rigveda alone the animal is mentioned around 700 times. But it is not clear the cow is off the menu. Those 700 mentions include references to slaughtering cattle for food and sacrifice. One text prohibits eating cows and bulls only to quote a revered sage, Yajnavalkya, who says otherwise. He would eat the meat of either "as long as it is tender".



→ *A miniature of Lord Krishna*

It seems Vedic Indians, who lived around 1500BC, ate beef. So did the gods. Indra, the king of gods, is said to have had a taste for bulls. Agni, the fire god, enjoyed the meat of horses, bulls and cows. In the Mahabharata, one of Hinduism's great epics, 2,000 cows were slaughtered daily in the kitchen of King Rantideva.

IT CONTAINS MULTITUDES

Such contradictions are not surprising. Hinduism is, says Wendy Doniger, a retired Indologist at the University of Chicago, a decentralised faith. There is no living figurehead comparable to the pope. Myriad holy men command personal followings. Hindus have their pick of deities, because god comes in many forms. There is no singular religious text, like the Bible or Koran, but rather an array of epics. There isn't even one holy day of the week. Individuals' practices depend on which temples they pray at, which elders they speak to and which texts they pick up.

That has left room for the powerful, religious or political, to push practices that serve their own ends. Various groups helped build what the late Indian historian, Dwijendra Narayan Jha, labelled "the myth of the holy cow". Like Mr Modi and his incarnation of the BJP, each group has emphasised venerating cows as a way to define its own community.

Start with Brahmins, the priestly caste. Around 500BC Buddhism was spreading in India. The Brahmins were grasping to maintain influence over the masses. It was no good trying to counter the Buddhist belief in *ahimsa*—non-violence towards all living things. The public was sold on it. Better to take the moral high ground. The Brahmins focused on parts of Hindu texts that do uphold cow worship. Where the early Buddhists, who were not vegetarians, opposed only the unnecessary sacrifice of animals in general, the Brahmins went further and stopped killing cows for meat, too. They went vegetarian and began to worship the cow. In an agricultural society, where cattle were valuable, it was an easy way to get the public onside. Soon lower-caste Hindus began giving up beef in an attempt to shimmy up the social ladder. Only the dalits, the untouchable caste, continued to eat beef.

The next boost to the myth of the holy cow came during the colonial era. When local Hindu rulers called for beef bans, the British refused, claiming they wanted to remain neutral in local conflicts. Besides, beef was—and still is—a staple in the British diet.

The cow protection movement, led by the Arya Samaj, a fundamentalist Hindu group, put the cow at the centre of their struggle to revive India's Hindu identity following decades under Muslim and British invaders. They demanded money from Hindu households and used it to build cow sanctuaries and organise violent protests. Posters and pamphlets listed offences, from setting cows loose to selling them to strangers.

Freedom fighters also used the animal as a symbol for their fight. "Cow protection is the gift of Hinduism to the world," Mahatma Gandhi said. "And Hinduism



← *A calf in a temple in Andhra Pradesh*

will live so long as there are Hindus to protect the cow." British consumption of beef became a lightning rod. The 1857 Indian Rebellion began when a rumour spread among the sepoys of the East India Company that the cartridges they tore open with their teeth and loaded into rifles were greased with beef tallow.

By the time India won independence, in 1947, the cow was regarded as an inalienable part of Indian identity. When the constitution was drafted, in 1949, the Parliament received over 100,000 letters, postcards and telegrams imploring lawmakers to institute a nationwide beef ban. The first prime minister, Jawaharlal Nehru, who claimed to be a secular modernist, caved. Article 48 of the Indian constitution calls on state policymakers to "endeavour" to prevent cow slaughter and preserve the native breed.

Since then, the fight for the holy cow has been part of the backdrop of Indian politics. Politicians of all stripes have entertained a national beef ban to appease the Hindu right.

With Mr Modi, the cow protection movement has one of their own in charge. He was eight when he joined the Rashtriya Swayamsevak Sangh (RSS), a right-wing paramilitary organisation that often shares a stage with the Arya Samaj.

Ahead of his election in 2014, Mr Modi accused opposition politicians of watching over a "pink revolution", promoting the slaughter of cattle and propping up the beef trade. In power, he has poured crores of rupees into setting up cow shelters. He has not done enough to condemn cow vigilante groups, like the one that killed Mr Akhlaq in Bisara. Under his leadership, BJP-led states have cracked down on cattle slaughter.

But eight years into BJP rule, it has become clear that talk of cow protection is about politics rather than faith. Life is no better for cows. The party's vaunted investment in cow sanctuaries has turned out to be a sham; there is often little effort to provide real shelter.

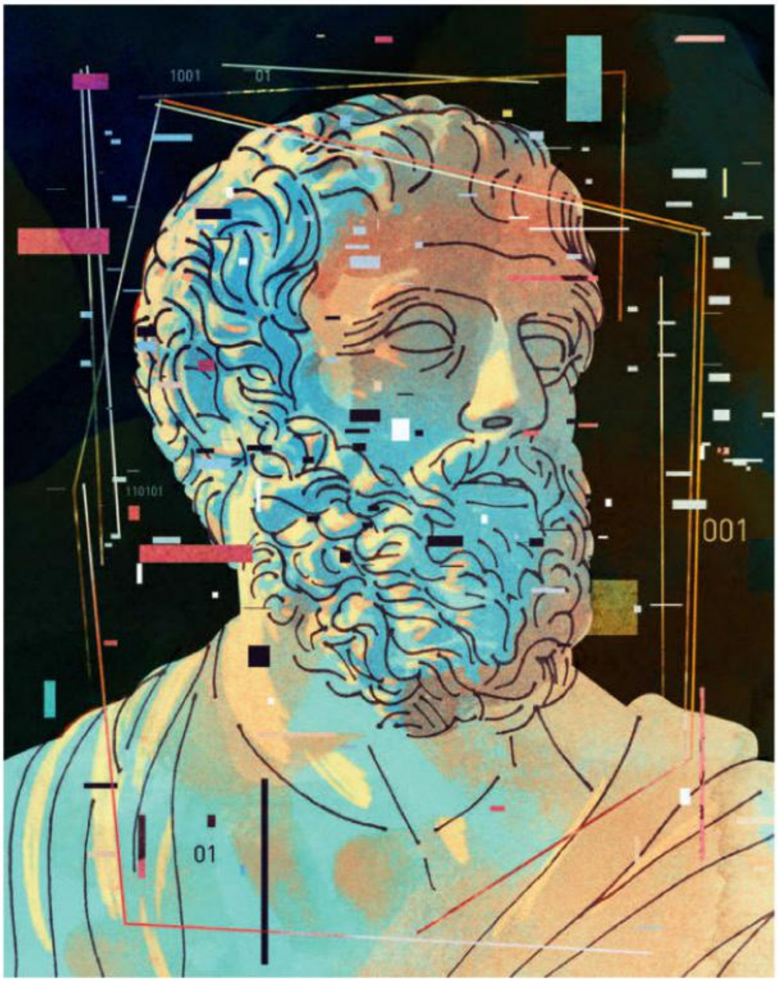
Despite the beef bans, butchers continue to kill cattle in underground slaughterhouses, which are far less humane than regulated shops. Chetan Sharma, a Hindu animal-rights activist, has raided about 500 illegal abattoirs over the past decade, and paints a grim picture. Butchers blind the animals by rubbing chilli powder into their eyes, whip them and drive them to remote areas. There are no stun guns or drugs to minimise the pain, just a struggle to hold the animal down and a whopping knife to the throat. Piles of limbs and severed heads are left to rot in pools of fetid blood.

THE DARK SIDE OF THE MOO

Meanwhile, India's cattle population is ballooning. Small dairy farmers have no use for cows once they stop producing milk. They don't even need buffaloes now that tractors and other mechanised farm tools have become affordable. But with cattle markets shuttered, they can't sell the animals. Indigent families have no option but to abandon them.

These stray cows have a miserable existence. In cities, they are hit by cars and choke on rubbish. They starve to the point that their ribs poke through their sagging skin. Those that roam rural areas cause trouble for farmers. In recent years, there have been countless reports of fed-up farmers shooting cows that ambled onto their land and destroyed crops.

In one farcical case, farmers in UP began locking wandering cattle inside public schools, bringing classes to a halt and filling the buildings with dung and urine. It was a desperate attempt to get BJP politicians to deal with what local media have termed "the stray cow menace". It was also a fitting metaphor for how the BJP itself is using cattle. After millennia of slaughter and sacrifice, worship and protection, India's cows have become pawns of the Hindu right. ■



THE NEW TECH WORLDVIEW

COMPLEX SAVIOURS

SAN FRANCISCO AND WOODSIDE

Silicon Valley may be coming down to earth. Not so tech's big thinkers

SAM ALTMAN is almost supine. He is leaning back in his chair, feet up, in his home library overlooking San Francisco's Golden Gate Bridge. In washed jeans and a T-shirt, the 37-year-old entrepreneur looks about as laid-back as someone with a galloping mind ever could. Yet the CEO of OpenAI, a startup reportedly valued at nearly $20bn whose mission is to make artificial intelligence a force for good, is not one for light conversation. The only signs of playfulness are two pairs of pink-coloured high-tops sitting on a bookshelf, with logos representing his two favourite technologies, AI and nuclear fusion. Occasionally he drifts into nerd-speak. At one point, keen to convince your correspondent that AI will progress faster than people think, he says, sounding rather robotic himself: "I'm curious if that caused you to update your priors."

Joe Lonsdale, 40, is nothing like Mr Altman. He's sitting in the heart of Silicon Valley, dressed in linen with his hair slicked back. The tech investor and entrepreneur, who has helped create four unicorns plus Palantir, a data-analytics firm worth around $15bn that works with soldiers and spooks, talks fast—and interrupts frequently. By his pool is a giant throne, from the set of "Game of Thrones". It fits with the grandeur of his worldview that the West, which he cherishes for its classical values of free thought and free speech, should be fighting an epic internal battle not to give in to self-loathing.

You might think these men have little in common. But they are both part of what Mr Lonsdale calls a "builder class"—a brains trust of youngish idealists, which includes Patrick Collison, co-founder of Stripe, a payments firm valued at $74bn, and other (mostly white and male) techies, who are posing questions that go far beyond the usual interests of Silicon Valley's titans. They include the future of man and machine, the constraints on economic growth, and the nature of government.

They share other similarities. Business provided them with their clout, but doesn't seem to satisfy their ambition. They measure their status not so much in mansions and yachts as in engagement with their blog posts and essays, some mind-numbingly long. There is a lot of fresh, idealistic money behind them. The number of techno-billionaires in America (Mr Collison included) has more than doubled in a decade. Some of them, like the Medicis in medieval Florence, are keen to use their money to bankroll the intellectual ferment. Their musings are treated with cultish reverence by scores of aspiring entrepreneurs.

This cohort of eggheads starts from common ground: frustration with what they see as sluggish progress in the world around them. Some think the transformation wrought by big tech has not lived up to the excitement—and wealth—that it generated. As Peter Thiel, the co-founder of PayPal, a payments firm, and mentor to many of these iconoclasts once remarked, "We wanted flying cars, instead we got 140 characters." Mr Altman puts it more optimistically: "The iPhone and cloud computing enabled a Cambrian explosion of new technology. Some things went right and some went wrong. But one thing that went weirdly right is a lot of people got rich and said 'OK, now what?'"

A belief that with money and brains they can reboot social progress is the essence of this new mindset, making it resolutely upbeat. Yet it is hard not to be sceptical. Governments are hounding Silicon Valley

over the power of big tech. Tech stocks have been hammered this year and firms are laying off workers in droves. To cap it all, the arrest of Sam Bankman-Fried, a crypto entrepreneur who once sought to be the epitome of a philosopher king, has shown how flaky the morality of supposedly enlightened elites can be. The question is: are the rest of them further evidence of the tech industry's hubristic decadence? Or do they reflect the start of a welcome capacity for renewal?

Silicon Valley has shown an uncanny ability to reinvent itself in the past. In the 1970s business stalwarts such as Hewlett-Packard and Intel could have launched the personal computer, but didn't, worried about the impact on their legacy products. Two hippies, Steve Jobs and Steve Wozniak, filled the void by creating Apple, unleashing a new age of personal computing. In the early 2000s buttoned-up venture capitalists became the bogeymen; they were dismissed for snubbing messianic young founders who created triumphs like Google. Soon came the turn of visionary founder-CEOs, and with them a shift in business philosophy to something more ruthless. As Meta's Mark Zuckerberg, co-founder of Facebook, memorably put it, "Move fast and break things."

Two well-known entrepreneurs from that era provided the intellectual seed capital for some of today's techno nerds. The most well known is Mr Thiel, a would-be libertarian philosopher and investor. The other is Paul Graham, co-founder of Y Combinator, a startup accelerator, whose essays on everything from cities to politics are considered required reading on tech campuses.

In the 2000s Mr Thiel supported the emergence of a small community of online bloggers, self-named the "rationalists", who were focused on removing cognitive biases from thinking (Mr Thiel has since distanced himself). That intellectual heritage dates even further back, to "cypherpunks", who noodled about cryptography, as well as "extropians", who believed in improving the human condition through life extensions. After a slow-burning adolescence, the rationalist movement has hit the mainstream. The result is a fascination with big ideas that its advocates believe goes beyond simply rose-tinted tech utopianism.

A burgeoning example of this is "progress studies", a movement that Mr Collison and Tyler Cowen, an economist and seer of the tech set, advocated for in an article in the *Atlantic* in 2019. Progress, they think, is a combination of economic, technological and cultural advancement—and deserves its own field of study. Mr Collison points to an array of influences for his progress fetish and cites the economist Robert Lucas: "Once one starts to think about [growth], it is hard to think about anything else." His Irish heritage may also have contributed; the country experienced a growth miracle in his youth. "I was Lucas-pilled by my upbringing," he says. He has co-founded the Arc Institute, which has raised $650m to experiment with new ways of doing science.

There are other examples of this expansive worldview. In an essay in 2021 Mr Altman set out a vision that he called "Moore's Law for Everything", based on similar logic to the semiconductor revolution. In it, he predicted that smart machines, building ever smarter replacements, would in the coming decades outcompete humans for work. This would create phenomenal wealth for some, obliterate wages for others, and require a vast overhaul of taxation and redistribution. His two bets, on OpenAI and nuclear fusion, have become fashionable of late—the former's chatbot, ChatGPT, is all the rage. He has invested $375m in Helion, a company that aims to build a fusion reactor.

Some dismiss their idealism as mercenary as well as messianic

On the more ideological side, Mr Lonsdale, who shares a libertarian streak with Mr Thiel, has focused attention on trying to fix the shortcomings of society and government. In an essay this year called "In Defence of Us", he argues against "historical nihilism", or an excessive focus on the failures of the West. With a soft spot for Roman philosophy, he has created the Cicero Institute in Austin that aims to inject free-market principles such as competition and transparency into public policy. He is also bringing the startup culture to academia, backing a new place of learning called the University of Austin, which emphasises free speech.

THINK BUBBLE

All three have business ties to their mentors. As a teen, Mr Altman was part of the first cohort of founders in Mr Graham's Y Combinator, which went on to back successes such as Airbnb and Dropbox. In 2014 he replaced him as its president, and for a while counted Mr Thiel as a partner (Mr Altman keeps an original manuscript of Mr Thiel's book "Zero to One" in his library). Mr Thiel was also an early backer of Stripe, founded by Mr Collison and his brother, John. Mr Graham saw promise in Patrick Collison while the latter was still at school. He was soon invited to join Y Combinator. Mr Graham remains a fan: "If you dropped Patrick on a desert island, he would figure out how to reproduce the Industrial Revolution," he says.

While at university, Mr Lonsdale edited the *Stanford Review*, a contrarian publication co-founded by Mr Thiel. He went on to work for his mentor and the two men eventually helped found Palantir. He still calls Mr Thiel "a genius"—though he claims these days to be less "cynical" than his guru.

Do their views matter to anyone beyond their circle of acolytes? The unravelling of Mr Bankman-Fried's crypto kingdom, after his FTX trading platform mishandled billions of dollars-worth of client funds, is a big red flag. He had promised to divert part of his wealth, measured at $26bn at its peak, to support effective altruism, a philosophical movement that purports to use rigorous cost-benefit analysis to do good. His downfall is bound to strain belief in anyone who boasts of being rich and clever enough to engineer radical social change.

Some dismiss their idealism as mercenary as well as messianic. "The tech industry has always told these grand stories about itself," says Adrian Daub of Stanford University and author of the book, "What Tech Calls Thinking". Mr Daub sees it as a way of convincing recruits and investors to bet on their risky projects. "It's incredibly convenient for their business models."

Yet the impact could ultimately be positive. Frustrations with a sluggish society have encouraged them to put their money and brains to work on problems from science funding and the redistribution of wealth to entirely new universities. Their exaltation of science may encourage a greater focus on hard tech, rather than internet apps. If they can inspire future entrepreneurs to engage in the hard slog of building tomorrow's trillion-dollar firms, their lofty theorising will have been worth it. ■



WENZHOUNESE

THE THREE KNIFE TRILOGY

PARIS AND PRATO

Emigrants from a small corner of China are making an outsize mark abroad

WANG RUI (pictured) was too young to remember his parents when they left him. He was just two when his mother set off to start a new life in Europe. A year later his father followed her. In the countryside around the coastal Chinese city of Wenzhou, young adults like them were doing the same in droves—abandoning their towns and villages, and often their children, in pursuit of a dream. Why eke out a hand-to-mouth existence in Wenzhou when there was far more money to be made in sweatshops in France or Italy? Why stay behind when so many had already left?

Mr Wang is sitting in a poky café in Pantin in north-eastern Paris, where the city gives way to the *banlieues*: grim suburbs with high populations of poor migrants. He recalls his childhood with sadness. His father was earning a decent income at a state-owned transport firm. "It was not necessary for him to leave China," he says. But his mother, who had a job in a village textile factory, was not satisfied. "Sometimes, when my mother is angry, she says she left China because she wanted to leave my father. But I also know that she wanted to get more money."

It was 1989 when she bade farewell, a year of pro-democracy upheaval in China and the rapid unravelling of communism's grip on eastern Europe. Demonstrators began demolishing the Berlin Wall; the Soviet Union's days were numbered. Chaos in eastern Europe created an opportunity: ill-guarded borders, easier for migrants like her to cross without being challenged.

Wenzhou was a place with a rebellious streak—not in a political sense, but in the realm of business. Even then, a decade into Deng Xiaoping's "reform and opening" programme, the economy of urban China was still

largely under the dead hand of the state. Wenzhou was different. It had a tradition of entrepreneurship that had weathered the worst of Maoism. Indeed, Mao Zedong had inadvertently fostered it by neglect. Wenzhou was on the front line of potential war with Taiwan, so the state and its firms invested little in it, fearing money spent could be lost in any conflict. It had no airport until 1990 and no railway link until eight years later. Geography had helped, too. Wenzhou's land-facing sides are ringed by hills and peaks. It is isolated. Its unique dialect is described in China as the least intelligible to outsiders—a "living fossil" of ancient Chinese.

The Wenzhounese are also famed in China for leaving their home town to do business elsewhere, and excelling at it. Even during Mao's vicious Cultural Revolution they travelled across the country, buying and selling, notes Joseph Fewsmith of Boston University in an edited volume, "Mao's Invisible Hand". They delighted in the nickname "the Jews of the east"—to Wenzhounese, the term captured their flair for commerce and a sense of kinship that helped them survive and prosper in far-flung places. Turn up in France, or Italy or Spain and there would be people ready to help.

Wenzhou was a place with a rebellious streak

THE TIES THAT BIND

Those bonds have enabled a remarkable phenomenon. Among Europe's 1.7m China-born immigrants, people with links to just one city—Wenzhou (and the neighbouring county of Qingtian, which historically was part of Wenzhou)—form the majority.

The Wenzhounese in Europe are concentrated in a few cities. You rarely chance upon their delicately flavoured seafood cuisine (*au cee*, as it is called in Wenzhounese), let alone hear snatches of their dialect, as you walk through streets elsewhere, not even in multicultural London. Among non-Chinese, even Wenzhou's name is little known (oddly—its population of about 9.6m is bigger than the British capital's). Yet in the places where most Wenzhounese have settled, their impact on business and society is huge.

Mr Wang's mother had a cousin in France, so that was the obvious place to go. It was fairly easy then to cheat the system. Many Wenzhounese were helped by people-smugglers. They commonly overstayed visas. When getting these became harder, pretending to be Japanese was used as a ruse. Get in line with some real Japanese tourists and European immigration officers would give your fake passport only a cursory glance.

As China opened its doors to the outside world in the 1980s and 1990s, making travel abroad easier, emigration from Wenzhou surged. It was mainly people from the city's rural environs who left. They were poorer and had little land. They also had strong ties with clans—it is common in Wenzhou's villages for many residents to have the same surname. People settling abroad could tap into kinship networks for support. Their loyalties to lineage reinforced the bonds of trust created by their links with this city and its distinct culture. In Europe, Wenzhounese tend to form communities based not on random affiliation with Wenzhou, but on which of the region's rural counties (plus Qingtian) they come from.

Their trust in one another is a key part of Wenzhou's entrepreneurial success. The area is famous in China for its informal lending schemes. People with a business plan can get the startup money they need without recourse to snooty state banks. Abroad, Wenzhounese migrants tap into their networks for cash.

But before going into business, there is a rite of passage—hard graft. Many Wenzhounese in Europe have similar stories of a long and tough induction to European life, toiling in tiny factories. Some migrants have had to work years to pay off debts incurred by payments to the "cattle", as Wenzhounese call the people-smugglers. The trust circle may have helped to provide the cash, but it had to be returned.

Wenzhou is known as the deer city (its central district, Lucheng, bears the name). That is because of a legend that, some 2,000 years ago, its founders saw a white deer with a flower in its mouth passing by. To them it was an auspicious sign. There is a streak of that optimism in how Wenzhounese sometimes describe their typical experience in Europe as a *sa bbu qo*, or trilogy. Part one involves drudgery as a *hee gong*, or black worker (black, in Chinese, meaning illegal). Part two is the stage of formal employment, with documents in order. In the final part, the migrant becomes the boss.

For many, part one has begun in central Italy on the edge of Prato, a medieval Tuscan town. In 1989 there were just 38 ethnic-Chinese people living there. Now there are about 35,000 and thousands more in the nearby regional capital, Florence. Most of them are from the Wenzhou area. Their arrival in Tuscany and sweeping reconfiguration of one of its pillar industries—clothing—has been one of the most dramatic chapters in the recent history of migration in Europe.

Just outside Prato's ancient walls, "Little Italy uncomfortably commingles with Little Wenzhou", as two scholars who have specialised in the study of Prato's ethnic-Chinese population, Elizabeth Krause and Massimo Bressan, put it in a research paper published in 2017. Farther towards the edge of town there is barely any sign of Little Italy in the industrial expanse that unfolds. On factory after factory, warehouse after warehouse, the signs have Chinese characters. Almost all are run by Wenzhounese and mainly employ Wenzhounese. "It is just like China!" exclaims a non-Wenzhounese emigrant from that country.

Ding Jinrong is the 56-year-old boss of one of these businesses, Hermosa Fast Fashion. His part-one story is typical: sneaking into Italy by road in 1991 via Hungary and Austria, then making his way to Prato where he ▸▸



↓ *A Chinese fast-fashion wholesale centre in Prato*

worked and slept in factories ("not as good as this one," he says, indicating his own large warehouse). Back then, he was alone. He had left his wife behind in their village outside Wenzhou. "It was a hard life," he chuckles. "But what could you do?"

The thousands of Wenzhounese who flooded into Prato at that time were following an earlier wave of migrants. These were mainly poor Italians from the south of the country, drawn by the city's textile businesses' need for cheap labour. The influx had caused a population surge in Prato, but by the 1980s the supply of such labour was running out. China was beginning to outcompete Prato's mostly small-scale businesses, which specialised in subcontracted work cutting and sewing materials for clothing firms. The Wenzhounese satisfied a desperate demand: they were willing to work hard for low wages. They saved a dying industry.

Soon they began to move up the value ladder, first taking over the tiny companies for which they worked, then the entire production chain. They developed a new specialism in *pronto moda*, or fast fashion. China could make clothes quickly, too, but getting them to Western markets could take weeks. Prato's Wenzhounese businesses could not only produce them rapidly, in lightning response to ever-shifting trends, but also ensure swift delivery to wholesalers in Europe. Moreover, they would have the coveted "Made in Italy" label. By the mid-2000s Prato boasted thousands of Chinese-owned clothing firms, making it Europe's biggest fast-fashion hub. Some did work for famous global brands. A centuries-old tradition of textile work in Prato had set out on a new trajectory, steered by Chinese.

KNIFE SKILLS

Wenzhounese are renowned in China for specialising in a handful of industries and establishing large shares of their markets both nationally and globally. Factories in Wenzhou produce 60% of the world's buttons, a quarter of China's spectacles and one-tenth of its shoes, official websites claim (don't ask about its share of the world's sex toys). Wenzhounese call their niche sectors in Europe the *sa bo de*, or three knives, because that instrument is used in all of them: making clothes, fashioning leather and catering. The Wenzhounese in Prato wield the first of these knives; those in Florence employ the second, making handbags and suitcases. Milan has Italy's biggest number of Wenzhounese (twice as many as Prato, although, as a share of the city's population, they are far less prominent). All of the knives have played a role in the Milanese community's growth. The city's Wenzhounese have spread into other businesses, too. By 2019 11.5% of bars in Milan were Chinese-owned, according to *Corriere della Sera*, a national newspaper based there.

It is the same in the other European countries with many Wenzhounese. The catering business has drawn many to cities in Germany, the Netherlands and Spain. They rarely serve *au cee* dishes, unless they know their customers are likely to be overwhelmingly Wenzhounese. Instead they offer better-known regional Chinese cuisine, such as Cantonese, or food from other countries (pizza included). In recent years Wenzhounese-run Japanese restaurants have proliferated in Paris. They now outnumber those with Japanese owners by ten to one, reckons Cheng Xiabing, a PhD student at Sorbonne University who focuses on Chinese involvement in the Parisian catering industry.



↑ *Prato's Chinatown*

In Paris Wenzhounese often specialise in the wholesale of clothing and leather goods. In 2015 a Wenzhounese tycoon, Hsueh Sheng Wang, opened Europe's biggest textile trading centre in a Parisian suburb. Mr Hsueh migrated to Paris from Wenzhou in the 1970s as a child, with his parents. His first job was as a deliveryman. The final part of his trilogy—as the CEO of Eurasia Group, a large property firm he founded—is legendary among the city's Wenzhounese.

The pandemic and the war in Ukraine have taken their toll. On a recent visit to the three-storey complex, your correspondent saw row after row of tiny showrooms crammed with displays—and boxes filled with goods ready to ship to customers. Yet Wenzhounese staff said there were far fewer visitors these days. The war has pushed up transport costs, they complained, especially from faraway production bases like China. Both in Prato and Paris, owners of textile- and leather-related businesses said a few were closing down.

Some Wenzhounese talk of returning to their native city to live. Amnesties offered by European governments mean most have acquired residency permits in Europe. But few have applied for foreign citizenship. China does not allow dual nationality, so Wenzhounese with Chinese passports mainly prefer to keep them: they are essential for doing business in China without the fetters imposed on foreigners, or for enabling retirement to their ancestral villages (where many still have houses).

Wenzhou's links to Europe far precede the influx of the past 30 or 40 years. The first long-term settlement of Wenzhounese on the continent dates back more than a century. During the first world war, the allies needed for labour—their own young men were needed to fight instead. Chinese people helped to make up the numbers. About 135,000 of them joined an allied organisation called the Chinese Labour Corps. Its members dug trenches, carried away the dead and injured, and maintained the roads and railways needed to supply the troops. After the war about 3,000 Chinese survivors (thousands had been killed by bombs, disease or in accidents) stayed behind in Paris. Many were from Wenzhou. Others from Wenzhou joined them later.

When China began opening up in the 1980s, France was therefore an obvious destination for Wenzhou-

Wenzhounese call their niche sectors in Europe the *sa bo de*, or three knives

nese, as was Italy, where some of those early migrants had headed, too. It may have helped that Wenzhou was no stranger to at least one strand of Western thinking: Christianity. Wenzhou is often described by Chinese as the country's "Jerusalem" because so many of its people are followers of the faith (at least one-tenth, by conservative official estimates). They are evangelical Protestants whose ancestors were converted by Scottish missionaries in the 19th century. Perhaps not the best fit with the Catholic traditions of countries such as France and Italy, but still a spiritual overlap. There is a link, too, with entrepreneurialism—many of Wenzhou's Christians believe that making money is a way of serving God. Successful ones are known as "boss Christians". In European cities wealthy Wenzhounese have helped to open churches, with services in their dialect. Paris has well over a dozen. "God gives us an ability to do business," says a lay clergyman.

But Europe can be a hostile place, too. Anger has flared against Wenzhounese, with people accusing them of everything from unfair and exploitative business practices, to crime and causing damage to local ways of life. In 2004 rioting erupted in the south-eastern Spanish city of Elche, a traditional centre of the country's shoemaking industry. Two Chinese shoe warehouses were set on fire. Hundreds of protesters took to the streets, some with banners saying "Chinese out". They were enraged by local Wenzhounese traders' sale of cut-price shoes from Wenzhou, which they said were forcing Spanish firms out of business.

Wenzhounese often complain about hostility shown by the police, accusing them of disproportionate targeting of Chinese businesses during crackdowns on illegal behaviour. In Milan in 2007, following a sharp escalation of fines imposed by Italian police on Wenzhounese traders for using private vehicles for commercial purposes, hundreds of Chinese staged a protest, waving Chinese flags. They clashed with police, injuring several, and overturned cars.

In 2009 the citizens of Prato—a city long known as a left-wing stronghold—elected Roberto Cenni as mayor. Mr Cenni, a centre-right textile entrepreneur, had made anti-immigration a central feature of his campaign for the job. "The people who are truly being discriminated against are the people of Prato," he said,

Young Wenzhounese... are beginning to find a voice

↓ *A Chinese neighbourhood in Prato*



referring to non-Chinese. Mr Cenni was replaced in 2014 by a left-wing mayor, Matteo Biffoni, who is more sympathetic to the Chinese presence. But September's election of a national government with a neo-fascist past has shown a worrying trend in European politics towards the far right, especially for immigrants.

Young Wenzhounese—those brought up in Europe, who are fluent in European languages and usually are citizens of the countries they live in—are beginning to find a voice. In Paris Wang Rui, the boy who was left behind in Wenzhou by his parents, rejoined them at the age of seven when his father returned to pick him up. In Rome, his first port of call, he recalls the scorching heat, and the pleasure of being able to drink water safely straight from the tap.

Now Mr Wang is 35, with a master's degree in management. The three knives are not for him. He is a business consultant who has also thrown himself into politics (at 18 he automatically became a French citizen, having grown up in France). Mr Wang and other young French Wenzhounese born or brought up in the country have helped the genesis of a rights-protection movement that, in recent years, has spawned several protests in Paris against anti-Asian racism.

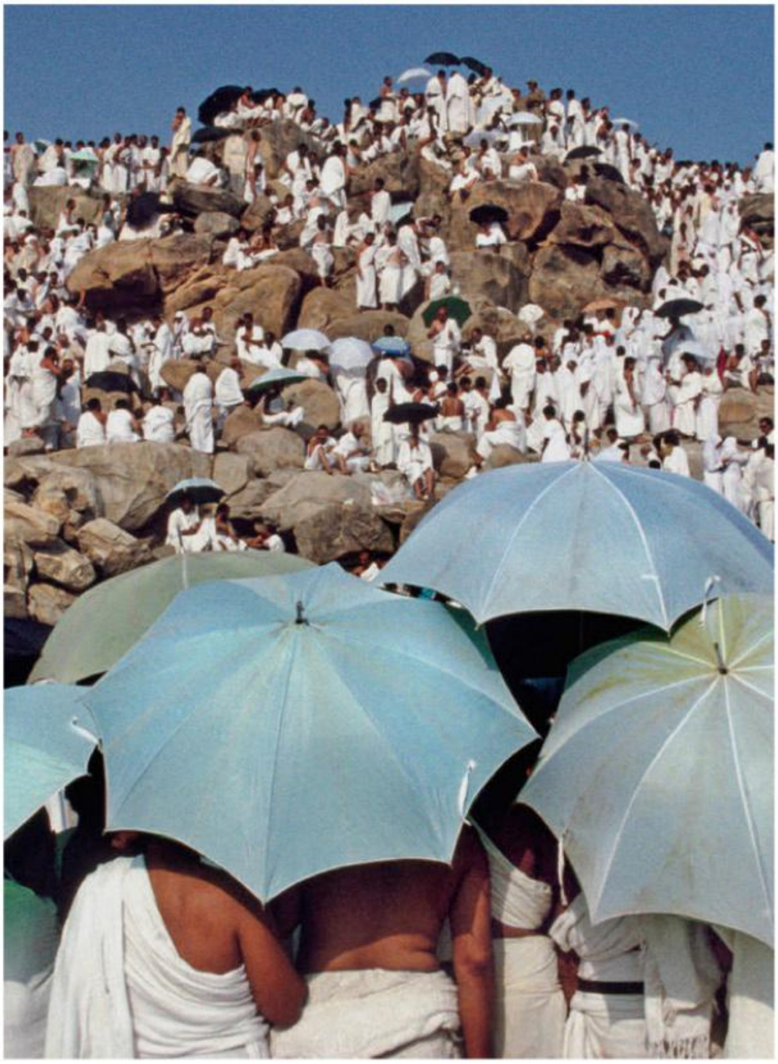
Singing the song of angry men

One of them, in 2016, attracted tens of thousands of people—the biggest ever led by ethnic-Chinese in Europe. The flags they waved were French. They sang "La Marseillaise". Many of the participants were Wenzhounese, angered by the death of a Wenzhounese tailor after being assaulted by three teenagers. The demonstrators complained that such attacks on ethnic-Chinese were often ignored by the Parisian authorities. The protest sparked much debate in France about such crimes. The tailor's assailants were convicted of the murder. The court ruled that it was racist.

Wenzhounese activists see the protest movement as a watershed—a political awakening among a group that hitherto had preferred to stay out of the limelight. One of them, Olivier Wang, a Wenzhou-born commercial lawyer, says the demonstrations have achieved some success. "It would be impossible to end all racism by French towards Chinese," he admits. But he says Wenzhounese have shown that they are no longer prepared to be ignored. "Now we stand up and say no."

Many young Wenzhounese still find it hard to say that word to elders in their community. The tradition of hard graft is one that is hard to shake off. You see it in the *café-tabac* shops that are part of the fabric of Parisian life. Visit one these days and it is likely that the people running it will be young Wenzhounese. The shops are controlled by a government monopoly—you need to be French to run one. It is tough work with long hours. But elder Wenzhounese, having completed their trilogies, are helping their French-born children shell out for them, seeing such shops as safe investments. In that most French of businesses, the Wenzhounese are spreading their wings.

Mr Wang, the consultant, longs to be seen as French. In 2020 he was elected as a councillor in Pantin, the commune of north-eastern Paris where he lives. He campaigns for more than the rights of ethnic-Chinese. He has joined Place Publique, a new centre-left party, and says he wants to represent Parisians of all kinds. As he is quoted as saying on the commune's website, "I don't want to be reduced to my origins." ■



HEAT AND THE HAJ

HOT SPOT

How will the haj change as the world gets warmer?

Al-Maqdisi, a medieval Islamic geographer, described the Hejaz region in Saudi Arabia as an area of "suffocating heat, deadly winds and clouds of flies". It is an inhospitable spot. But it is also the site of the *haj*, the annual pilgrimage that every Muslim who is able must complete once in their lifetime.

Before the pandemic led to a temporary cap on numbers, 2.5-3m pilgrims attended each year. Today the pilgrimage is made possible by mitigating the heat with technology and infrastructure. But as the world warms, keeping *hajis* safe will be harder and costlier.

Even in winter, average temperatures near Mecca rarely fall below 20°C. In large crowds the press of bodies makes it more difficult for each individual to dispel heat. July to October, when the air is hottest and still damp, is most dangerous. Combining heat and humidity gives the "wet-bulb" temperature. The higher it is, the less organisms are able to avoid overheating by sweating since moisture evaporates more slowly.

At wet-bulb temperatures of more than about 29°C, almost any activity outside becomes treacherous. At 35°C scientists think it becomes impossible for humans to cool down, meaning they effectively cook (testing this on actual people is, for obvious reasons, tricky). At these levels, even a young, healthy person with unlimited water and shade is expected to die in about six hours. The fatal threshold for the elderly or those with medical conditions is much lower. The average *haji* spends about 20 to 30 hours outdoors.

Roughly one in every 1,000 religious visitors to Mecca dies, many from cardiorespiratory attacks. The highest wet-bulb temperature recorded during the *haj* was 27°C in September 2015. That year hundreds, probably thousands of pilgrims perished in a crush: doctors reported many deaths from heat stroke.

The Arabian Peninsula is heating up significantly faster than the average for the rest of the globe. Even if all countries meet their current commitments to cut greenhouse-gas emissions—a big if—climate models project that wet-bulb temperatures could exceed 29°C on 15% of *haj* days between 2045 and 2053, and 19% between 2079 and 2086. It may get much worse.

Serious efforts have already been made to protect pilgrims. Tents to sleep in are air-conditioned. Significant tracts of the pilgrimage are conducted inside vast climate-controlled tunnels. Walkways and prayer sites are lined with fans pumping out water vapour. At least 4,000 hospital beds and 25,000 medics are made available and further hospital areas are being built. Wealthier pilgrims can travel by air-conditioned trains—which run for just seven days a year. Those with less money take crowded buses (or walk).

Many poorer Muslims must save for years and go on the *haj* when they are older and more vulnerable. In future, demand may rise in cooler years, pushing prices up and forcing the poor to go in the cheapest but most dangerous months (based on a lunar calendar, the *haj*'s dates shift forward by about 11 days each year). One solution in very hot years could be an age limit.

The *haj* has persisted for centuries; it will not disappear. One *haji*, in 1807, rhapsodised about pilgrims' forbearance, "through a thousand dangers" and "fatigues of every description". But as temperatures increase, so too, for some, will the difficulties of devotion. ■

For an interactive tour of the haj sites, visit **economist.com/WarmingHaj**

→ Sections of the *haj* most susceptible to rising temperatures

The logistics of the modern *haj* are already mind-boggling—and by 2030 the Saudis want to double the number who attend. During the five official days of the *haj*, pilgrims carry out multiple rituals in five locations, spread over around 170 square kilometres.

BEFORE THE HAJ BEGINS
In the Grand Mosque in Mecca pilgrims perform the *tawaf*: circling seven times around the Kaaba, a cube-shaped black shrine. Many then perform the *sa'i*, walking or running between two hills seven times (repeated later). Covering a total of 3km, the *sa'i* now occurs entirely within vast air-conditioned tunnels.

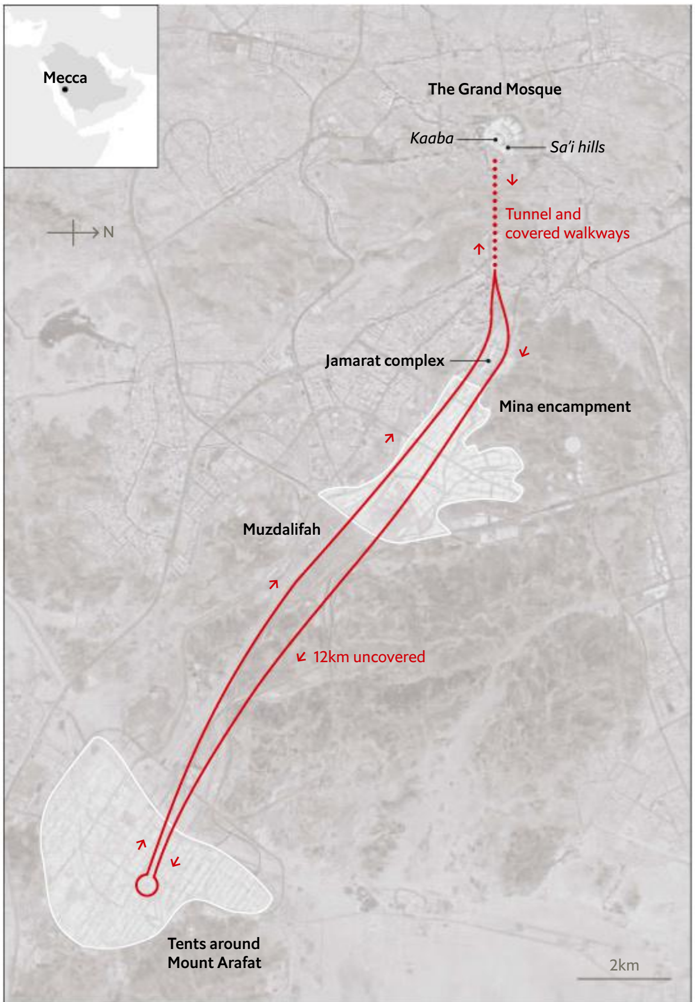
DAY ONE
Pilgrims travel to the Mina encampment, 8km away. Most take buses. Others walk through cooled tunnels. Mina's 100,000 communal tents are now air-conditioned, but pilgrims on more expensive packages get roomier—and cooler—accommodation.

DAY TWO
At dawn, pilgrims depart for Mount Arafat, walking about 2km outside to catch buses or trains. Some hike the whole 12km, believing that to be a holier endeavour. The day is then spent in prayer on the Arafat plains, mostly under shade or in tents (again, the priciest have the best cooling systems). Many pilgrims scale the peak of the mountain. At sunset pilgrims go to Muzdalifah in the desert. Walking this 9km stretch is considered especially virtuous, though some choose to do so simply because of the traffic. The night at Muzdalifah is spent outside: no tents allowed. High night-time temperatures can be particularly dangerous since the body does not get its usual respite from heat.

DAY THREE
Pilgrims head for the Jamarat complex near Mina, around 4km, travelling along the largest pedestrian road in the world. The asphalt is specially coated to stop it absorbing heat. At Jamarat, pebbles are thrown at pillars representing the devil. This is crowded and extremely hot and is vulnerable to dangerous crushes. Some 300,000 pilgrims pass over the main bridge per hour. Pilgrims return to Mecca and the Kaaba, for another *tawaf* and *sa'i*. They sleep in Mina.

DAYS FOUR AND FIVE
The stoning of the devil at Jamarat is repeated. Pilgrims' hair is cut and animal sacrifices are carried out in remote slaughterhouses.

DAY SIX
Pilgrims leave the Mina camp for Mecca, and perform a final *tawaf*. The *haj* is over. Many people travel on to Medina, Islam's second-holiest city. The main mosque there is now shaded by an enormous lattice of mechanical canopies.



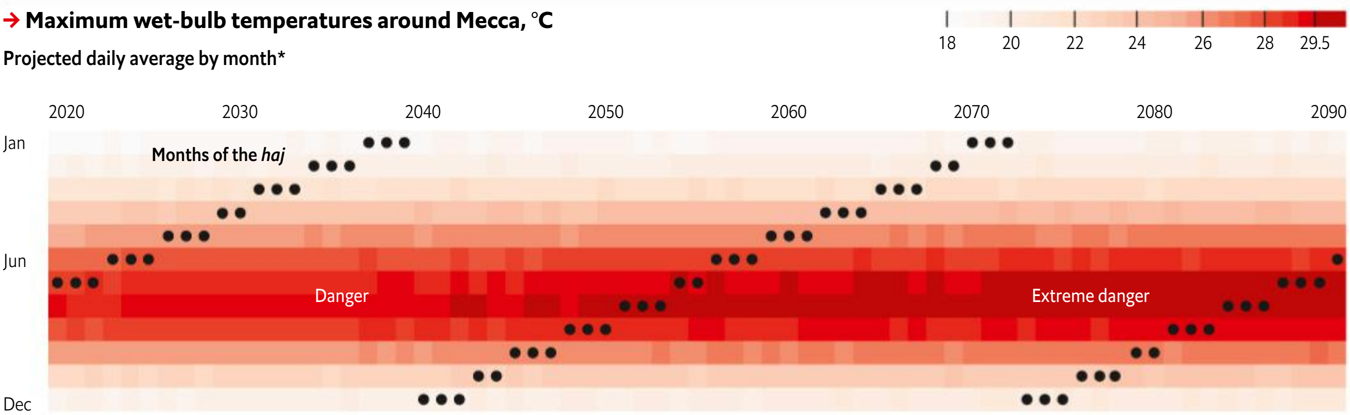
2°C
Average increase in Mecca's temperature since 1980 compared with 0.5°C globally

6m
The number of *hajis* the Saudi government hopes for by 2030

22%
Proportion of the world's population who will be 60-plus by the year 2050

→ Maximum wet-bulb temperatures around Mecca, °C

Projected daily average by month*



*CMIP5 multi-model mean based on current emissions trajectory (RCP4.5) Sources: WMO Regional Climate Centre at KNMI; *The Economist*



COPYRIGHT

TAKING THE MICKEY

A treasure trove of Hollywood intellectual property is heading for the public domain

TROUBLE IS AFOOT in the Hundred Acre Wood. Christopher Robin, now grown up, returns to his childhood stomping ground to find Eeyore dead, Piglet grown into a snorting wild hog and Pooh wielding a sledgehammer. The feral animals murder anyone in their path—mostly young women, some in bikinis.

A.A. Milne, who created Pooh in 1926, might not have approved of "Winnie-the-Pooh: Blood and Honey", a low-budget slasher film due out in February. But no approval from his estate was needed. In January 2022 the copyright on "Winnie-the-Pooh" expired in America and the work entered the public domain. Since then the bear has also featured in a mobile-phone advertisement as "Winnie-the-Screwed", complaining to Rabbit that his mobile bill is too high.

Every year a new haul of creative work leaves copyright and becomes free for anyone to adapt and exploit. In America, where copyright for older works is usually 95 years, recent entries to the public domain include Ernest Hemingway's "The Sun Also Rises" and F. Scott Fitzgerald's "The Great Gatsby".

But a new era in copyright is now dawning. As the limit begins to expire for works created in the late 1920s, the public domain is starting to receive not only works of literature, art or music, but video, too. Hollywood's intellectual property, some of it still wildly valuable, is increasingly up for grabs.

In January "The Jazz Singer", one of the first successful "talkies", will go out of copyright. Warner Bros, which released the film in 1927, is unlikely to worry much about losing the rights to what is today a historical curiosity. But a year later "Steamboat Willie", the first film featuring Mickey Mouse, who sits at the cen-

tre of Disney's merchandise business which brings in more than $5bn a year, will be there for the taking. In the 2030s Disney films including "Snow White", "Bambi" and "Fantasia" will slip out of copyright. So will some of the comic-book heroes who are among the most successful performers at the modern box office. The latest Batman movie took more than $770m at the box office; Warner has two sequels planned. Yet from 2035, anyone will have the right to make one.

For Hollywood executives 95 years may feel all too fleeting, but copyright terms used to be much shorter. The first modern copyright law in the English-speaking world, published in 1710, gave rights-holders in England up to 28 years' ownership of their work. America followed suit with its first federal copyright law in 1790. By 1909 the term was 56 years. This held until the 1970s. Then, just as Hollywood's treasures were about to become public property, Congress stepped in to lengthen the term to 75 years. In 1998, as Domesday approached once more, Congress passed the "Mickey Mouse Protection Act", as it was mockingly known, extending the copyright term to 95 years.

Many expected a further extension. None has materialised. The reason, in a number of ways, is the internet. First, it has turned voters into copyright liberals. In the 1990s the subject of copyright was of interest only to "educators, historians and librarians", says Mitch Stoltz of the Electronic Frontier Foundation, a free-speech pressure group. With the advent of the internet, people saw how easily information could be copied, and how copyright rules curtailed their ability to share music or images, or to post on social media.

The internet also changed the balance of lobbying power. Publishers, record labels and film studios had always pushed for lengthy copyright terms; no commercial interest had reason to push hard against them. That is, until the arrival of companies such as Google and YouTube, which make their money by sharing other people's content. Google won legal battles over its use of copyrighted pictures in its image search. Record labels sued YouTube for hosting clips featuring their music, before the labels decided to settle.

More recently, America's culture wars have made Congress more hostile towards Hollywood. Josh Hawley, a Republican, has called for copyright to be shortened to punish "woke corporations like Disney". That is unlikely, but another extension is less likely still.

As valuable properties slip towards the public domain, film studios are shoring up their legal defences. One comfort to Hollywood is that more recent, better-known versions of their characters are still off-limits. "Steamboat" Mickey is black and white and doesn't wear white gloves. The Winnie-the-Pooh now in the public domain is the version drawn by E.H. Shepard in 1926, rather than the red T-shirted, bare-bottomed creation that Disney popularised in 1966. Batman will go out of copyright in 2035 but the Batmobile will be protected until 2037, since for his first couple of years Batman drove a pedestrian red sedan.

As the copyright deadline approaches, Hollywood is preparing another defence. Lawyers for studios such as Disney are getting ready to make the case that characters like Mickey Mouse are not just literary works, but logos. Brands and emblems fall under trademark law, which exists to help consumers identify products as originating from a certain company. And while copyright expires, trademarks can last for ever.

Reimagining an old work is an art in itself



The pioneer of "double-wrapping" creative works in both copyright and trademark was Edgar Rice Burroughs, who locked up both sets of rights to "Tarzan of the Apes", which he wrote in 1912. Today "Tarzan" is out of copyright, meaning anyone is free to write a Tarzan story. But anyone putting Tarzan's name or image on a piece of merchandise can expect a complaint of trademark infringement from Edgar Rice Burroughs, Inc., which has licensed the Tarzan name for everything from video games to casinos. In practice, this is enough to put big names off creating unlicensed Tarzan stories. Today, such spin-offs are an essential part of the economics of film production.

That sure is swell

Disney holds Mickey Mouse trademarks for a wide range of commercial uses and might argue that his appearance on a T-shirt, say, would fool consumers into thinking the apparel was a Disney product. Yet this argument only goes so far, suggests Eric Perrott of Gerben, a firm of trademark lawyers. From 2024 a company will be within its rights to use a frame from "Steamboat Willie" on a T-shirt, he argues. And the vendor would be allowed to use the words "Mickey Mouse" to describe such a product, just as a used-car dealer can use a brand name like Volvo without permission.

But anyone selling Mickey merchandise can expect a bruising time. "Even if you're right, [when] fighting Disney in a legal battle you've already lost because of how expensive it will be," Mr Perrott cautions. Hollywood takes no prisoners when defending its intellectual property. In 2015 a court upheld Warner Bros' complaint against a mechanic who had been making and selling replicas of the Batmobile for $90,000. The judge cited Batman in her ruling: "In our well-ordered society, protection of private property is essential."

As copyrights near their sell-by dates, Hollywood is getting ready. Studios are wringing value out of properties like Batman while they still can, says Dan Mayeda of the University of California, Los Angeles, while also building up spin-offs whose copyright will last longer. Trademarks are being beefed up. Since 2007 Disney's animation arm has incorporated a few seconds of "Steamboat Willie" into the logo that pops up at the beginning of its movies in an effort to establish that specific Mickey as a trademark, believes Mr Stoltz.

Defenders of long copyright terms argue that they encourage creativity by forcing artists to make original content rather than rehashing that of others. Yet no industry has demonstrated better than Hollywood how reimagining an old work is an art in itself. Disney raided the back catalogues of public-domain writers like Hans Christian Andersen for material that its animators turned into original films such as "The Little Mermaid" and "Frozen". It drew on Arabian folk-tales for "Aladdin" and Polynesian mythology for "Moana". Since acquiring Marvel it has taken tired comic-book heroes from the 1960s and turned them into the most popular movies of the 21st century.

The shifting of Hollywood's cultural treasure into the public domain promises to spark more such creation and recreation. Some of the resulting output should add more value than "Blood and Honey". Meanwhile, fans of Pooh's gruesome new adventure will delight in its producers' next project: a horror reimagining of "Peter Pan", whose stage-adaptation rights enter the public domain in America in a year's time. ■

INDONESIA SETS NEW STANDARD FOR B20 SUMMITS

INDONESIA'S G20 PRESIDENCY HAS BEEN CALLED THE MOST CHALLENGING IN HISTORY. THE SUCCESS OF ITS B20 SUMMIT IS A TESTAMENT TO THE NATION'S TIME-HONOURED TRADITION OF INCLUSIVE COLLABORATION



Arsjad Rashid

"Indonesia can advocate for both developed and developing economies on the global stage."

— Arsjad Rasjid,
chairman of the Indonesian Chamber of Commerce and Industry (KADIN), host of B20 Indonesia

Bringing together business and government leaders from the world's largest economies, the Business 20 (B20) is the premier platform for dialogue between the private and public sectors. Since 2010, it has played a pivotal role in the Group of Twenty (G20) intergovernmental forum, acting as the bridge between policymakers and business executives for engagement and investment.

With Indonesia steering this year's G20—the first time a developing country has done so—its business agenda was markedly different from previous years. As the B20 host, the Indonesian Chamber of Commerce and Industry (KADIN) put the needs of emerging economies first through the theme: "Advancing Innovative, Inclusive, and Collaborative Growth".

The world's fourth most populous nation is uniquely positioned for the G20-B20 presidency, says Arsjad Rasjid, chairman of KADIN. Situated between the global north and global south—and the only member of the Association of Southeast Asian Nations (ASEAN) that is part of the multilateral platform—Indonesia's status has allowed for sustained high-level dialogue on empowering the developing world throughout this year's B20. Rasjid highlighted that Indonesia can "advocate for both developed and developing economies on the global stage".

To help achieve the G20 priorities of global health architecture, digital transformation and energy transition, KADIN had equitable and sustainable growth as "its north star" from the outset, explains chair of B20 Indonesia, Shinta W. Kamdani. Throughout history, the driving force of human progress has been small businesses, innovators, and entrepreneurs, Kamdani says, and therefore Indonesia's B20 prioritises development that is inclusive of all stakeholders—particularly micro, small and medium enterprises (MSMEs), women, and other vulnerable groups.

After a year of crafting 25 policy recommendations and 68 policy actions, along with four legacy programmes, the B20 communique was delivered to the G20 during the B20 summit from November 13-14 on the paradise island of Bali. Featuring 103 speakers from over 30 countries, the summit was attended by more than 3,000 business and government leaders from 69 countries, while over 45,000 participated online. In delivering this year's event, Tony Blair, chair of the Tony Blair Institute for Global Change, says Indonesia "set a new standard for B20 gatherings".

Backbone of the global economy

Worldwide, MSMEs represent 90 percent of businesses and contribute up to 70 percent of global GDP by some estimates. Indonesia is home to 64.2m small businesses, of which 64 percent are run by women. From smallholder farms to food stalls, these small businesses account for just over 60 percent of Indonesia's GDP and absorb 97 percent of its workforce. And yet, Kamdani explains, when engaging with the G20, "people always talk about the big companies, the big institutions". Thus, this year, Indonesia's president Joko Widodo was determined to focus on MSMEs, setting a target for Rasjid and KADIN to increase MSME development, particularly through digitalisation.

Recognising their crucial role in economic resilience and job creation, Rasjid emphasises the need to facilitate greater participation among MSMEs in complex supply chains. To achieve this, the B20 is calling on leaders in the business community to help foster resilience and sustainability among MSMEs through its "inclusive closed loop" model. By sharing best practices, funding and technology, KADIN believes bigger companies can help bring smaller ones into the global supply chain. Over 30 businesses have pledged their participation so far, including PayPal, Nike and Bayer.

With women's empowerment and gender equality also at the top of its agenda, B20 Indonesia formed the Women in Business Action Council to formulate policy actions that support new and existing women's empowerment initiatives, with a focus on women in business and in the workplace. During the summit, UN Goodwill Ambassador and actress Anne Hathaway urged the public and private sectors to support care services, optimise inclusivity, and put women at the heart of economic growth. Following this, Bob Sternfels, global managing partner of McKinsey & Company, noted that $11 trillion could potentially be added to the global economy "by focusing on women's empowerment".

Businesses essential to green energy transition

The B20 summit brimmed with examples of private sector innovations that are accelerating the green energy transition, such as Sun Cable's Australia-Asia Power Link, the world's largest solar energy infrastructure network.

Indonesia's minister for energy and mineral resources, Arifin Tasrif, acknowledged the essential role of the business community in developing and financing ventures to achieve net zero emissions. Masatsugu Asakawa, president of the Asia Development Bank (ADB), agreed that the private sector is crucial to achieving net zero, while highlighting that the ADB has committed $100 billion in cumulative climate financing from 2019-2030 for its developing member countries.

Among its policy recommendations to accelerate a green and just transition, the B20 is calling on the G20 to set clear green infrastructure targets and support its construction in developing countries, while incentivising banks to maximise green financing. Jennifer Westacott, chief executive of the Business Council of Australia, said "decarbonisation needs to get into the DNA of companies and the soul of countries."

A linchpin of global collaboration

Amid the pandemic recovery and increasing political and economic instability, Rasjid believes this year's B20 proves what can be achieved through inclusive collaboration. Known in Indonesia as *gotong royong*, the concept is deeply embedded in the country's collective identity. All economic growth should be based on *gotong royong*, he says, as "we cannot leave anyone, or any country, behind."

"Throughout history, the driving force of human progress has been small businesses, innovators, and entrepreneurs, and therefore Indonesia's B20 prioritises development that is inclusive of all stakeholders."

— Shinta W. Kamdani,
chair of B20 Indonesia



Shinta W. Kamdani

Without a monumental increase in partnerships between the public and private sectors, G20 countries will face a $10.6 trillion gap for infrastructure by 2040, warned Natalie Black, His Majesty's trade commissioner of Asia-Pacific. "The key is to listen to all stakeholders, local communities, MSMEs, as well as big corporations."

In his summit closing address, the president of South Korea, Yoon Suk-yeol, said the B20 should now work to not only identify unique business cooperation agendas, but to act as a vehicle for forging partnerships among companies and countries. By doing so, "B20 will position itself as a linchpin of global collaboration".

B20 INDONESIA 2022

By: INDONESIAN CHAMBER OF COMMERCE AND INDUSTRY

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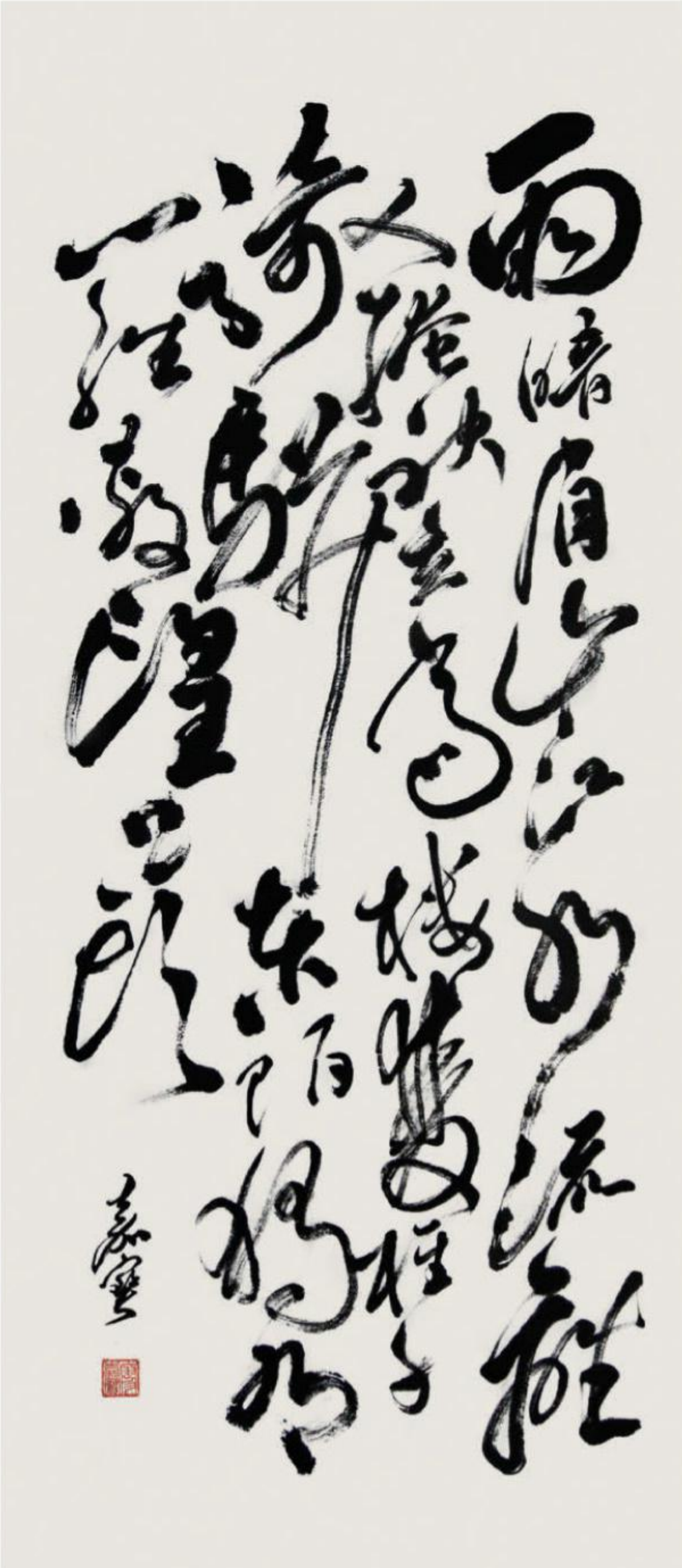
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CLASSICAL VERSE

THROUGH A CRYSTAL CURTAIN

The Chinese celebrate Tang poetry as a pinnacle of their culture. Does it survive translation?

EZRA POUND, an American modernist, described poetry as "news that stays news". The versions of classical Chinese poetry he published in "Cathay" in 1915 were a declaration that, in a world of Model Ts and machine guns, 1,200-year-old verse still mattered.

That is certainly what the Chinese think today. In the West poetry is a minority pursuit; in China it is woven into people's lives. Children learn classical verse throughout their schooling, new poems celebrate births and marriages, and idiomatic speech is embroidered with ancient couplets.

Last year Wang Xing, founder of Meituan, a food-delivery giant, quoted "The book-burning pit", a Tang-dynasty poem by Zhang Jie (836-905AD) in which an emperor kills dissenting scholars and destroys their work. Meituan's stockmarket value duly fell by $26bn. Classical poetry is so familiar in China that, although Mr Wang pretended otherwise, everyone knew he was criticising the repressive rule of President Xi Jinping.

Can this ancient poetry come alive to readers who, like your correspondent, speak no Chinese? The barriers are immense: not just temporal, but linguistic and philosophical. However, the rewards are immense, too: a glimpse into a great civilisation, the spritz of fresh imagery, and sudden, consoling moments when an eighth-century poet rises up off the page, a human being like any other. Nowhere are these rewards stacked higher than in the poetry of the Tang dynasty.

The Tang lasted from 618 to 907AD. During its first half, as China flourished, the Silk Road brought luxuries, wealth and exoticism. The capital Chang'an, modern-day Xi'an, had about 1m inhabitants. Perhaps 5% of them were literate. Before a rebellion knocked everything off centre in 755, it may have been the most prosperous and cosmopolitan city in the world.

As in Shakespeare's England and J.S. Bach's Germany, something was in the air. Early in the Tang, poetry-writing was brought into the examination that selected scholars for the bureaucracy. Among the finest Tang poets were great drinkers who had studied for the exam but failed it, or who could not hold down a government job (some things never change).

Verse was communal. Tian Yuan Tan, professor of Chinese at Oxford, explains that, during this time, it spread from the court into everyday life. When somebody left town, you wrote a poem. To dignify a banquet, you declaimed a poem. If your friend was out when you dropped by, you left a poem behind.

If your friend was out when you dropped by, you left a poem behind

Plenty of people could write Tang verse. Stephen Owen, a Harvard professor who may have translated more of it than anyone, says that, even if writing good poetry was formidably hard, everyday poems were easy to toss off—Chinese has plenty of rhymes and stock allusions. Fortunately, the best verses were rapidly anthologised, one reason so many still exist.

And poetry was becoming more contemplative. Some wrote of the miseries of exile. The rebellion caused upheaval and suffering, some of which coloured poetry. David Hinton, a poet and translator, argues that Tang China was perfused by Chan Buddhism, better known by its Japanese name, Zen. All this gave verse a depth that court poetry had lacked.

It is one thing for Chinese-speakers to look back on the Tang poets in awe. It is quite another for their poetry to work in modern English. Robert Frost, a 20th-century American writer, is supposed to have said that "poetry is what is lost in translation". If so, grappling with Chinese poetry is doubly futile. English has no tones, or characters—which may add layers of meaning. Eliot Weinberger, who wrote a book that compares 36 translations of a single, celebrated four-line Tang poem, points out that Chinese verbs have no tense, the sentence may have no subject and a single character could have several meanings (modern Chinese is less ambiguous, because it tends to group text into two-character units). That leaves the translator with a lot to fill in. Mr Hinton says that European poetry is "the same grammatical world just reorganised." By contrast, "for Chinese, you pretty much have to reinvent it because the language is so radically different."

Inevitably, there are plenty of bad versions of Chinese poetry. It is unfortunate that the first Tang poem in English, "Climbing Qi Mountain in The Double Ninth Day" by Du Mu (803-852), from a missionary called Robert Morrison in 1815, mixes up the words for wild geese and swallows. The rhymes of Launcelot Cranmer-Byng, a renowned British translator who died in 1945, are hard for the modern ear to bear.

Yet Frost's epigram is either obvious or fatuous. Obvious because nobody could imagine that the sounds and layers of meaning which make poetry sing in one language could ever map directly onto another. Fatuous because of the in-your-face fact that, from Chapman's Homer to Seamus Heaney's "Beowulf", poetry books are bursting with inspiring translations.

Indeed, the language has changed so since the Tang that poems read out loud in the original Middle Chinese would be incomprehensible to speakers of modern standard Putonghua. In a sense, everybody who experiences poetry across a millennium experiences it in translation. As a rebuke to Frost, Mr Weinberger begins his study: "Poetry is that which is worth translating." Here are five Tang poems. Judge for yourself.

China has hundreds of poems about the frontier. Most of them were heroic, but here Li He (791-817), a Late Tang maverick, instead paints a desolate picture of a barbarian threat out in the nothingness.

Cathay, by Ezra Pound, *Hardpress Publishing*, 2012. **Poems of the Late T'ang**, A. C. Graham, *New York Review Books Classics*, 2008. **Brocade River Poems: Selected works of the Tang Dynasty Courtesan**, Jeanne Larsen, *Princeton University Press*, 1987. **The Great Age of Chinese Poetry: The High Tang**, Stephen Owen, *Quirin Press*, 2013. **Awakened Cosmos: The Mind of Classical Chinese Poetry**, David Hinton, *Shambhala Publications*, 2019.

On the Frontier *translated by A.C. Graham*

A Tartar horn tugs at the north wind,
Thistle Gate shines whiter than the stream.
The sky swallows the road to Kokonor.
On the Great Wall, a thousand miles of moonlight.
The dew comes down, the banners drizzle,
Cold bronze rings the watches of the night.
The nomads' armour meshes serpents' scales.
Horses neigh, Evergreen Mound's champed white.
In the still of autumn see the Pleiades.
Far out on the sands, danger in the furze.
North of their tents is surely the sky's end
Where the sound of the river streams beyond the border.

A lot of Chinese poetry layers images on top of each other. In the first stanza, Li He begins with a panorama—Kokonor comes from the Mongolian word for Qinghai, a region 1,700km west of Beijing.

Then he zooms in on the soldiers, down to the plates in their armour. The Evergreen Mount is the tomb of Wang Zhaojun, who was sent as a wife to appease a Barbarian leader. The mound was supposed to be green—but here, in the moonlight, it is drained of colour, like the steppe.

And the last stanza pulls back out again. Mr Tan points out that Li He mixes scenery and emotion. The flickering star-cluster that Westerners call the Pleiades was an omen of barbarian invasion. Although the soldiers cannot see the horde, they sense it and they are apprehensive. The Yellow River flows from the wilderness into China, unstoppable.

The next poem is about a woman at court who is let down by her lover. As in much Chinese poetry, it draws its power from what is left unsaid.

The Jewel Stairs' Grievance
translated by Ezra Pound

The jewelled steps are already quite white with dew,
It is so late that the dew soaks my gauze stockings,
And I let down the crystal curtain
And watch the moon through the clear autumn.

This lament is unusual for Li Bai (701-762). He was an extrovert best-known for writing about friendship and drinking. The woman has been waiting for her lover for some time because her stockings are soaked. It is a clear night: he has no excuse. By the third line she has accepted that he is not coming and returns to her room, lowering a beaded curtain. The moon could represent two people's separation, grievance or a mirror of the woman's mind, empty and at peace. As Pound remarks in a gloss, "the poem is especially prized because she utters no reproach".

Pound did not speak Chinese. He was working from notes provided by the widow of Ernest Fenollosa, an American professor in Japan and he makes mistakes. The steps are white jade—marble—not jewelled; the stockings silk. By tradition, poems like this are in the third person, with the poet as an omniscient observer. Mr Owen says that in the original the moonlight in the last line is scattered by the crystal curtain, just as it was by the dew: the lovers' moon is in fragments.

Pound's versions of Chinese poems were so fresh that "Cathay" had a profound and lasting influence on ▸▸

modern American poetry. Pound wanted to escape the sentimentality and prolixity of the Victorians. In the crystalline economy of Japanese Haiku and classical Chinese poetry he found the means.

Farewell poems make up a lot of Tang verse. Most were formulaic, but this stands out not only for its emotional subtlety, but also because its author, Xue Tao (ca.768-831), was a courtesan famed for her writing.

Seeing off Zheng, Prefect of Meizhou
translated by Jeanne Larsen

Rain darkens Mothbrow Mountain;
the river waters flow.
Parting:
her face behind her sleeves, she
stands atop the watchtower.
Two matched pennons,
a thousand mounts
in pairs on the Eastern Road—
alone she gazes
like a faithful
wife toward the column's head.

The figure two runs through this poem. The woman's sleeves, the standards, the columns of cavalry all contrast with the couple who are separated as he leads his troops to war and she is left behind.

According to Jeanne Larsen, the translator, the complete Tang anthology features about 2,250 poets; 130 of them are women, represented by 600 poems. Courtesans were entertainers. They were meant to be gifted poets and musicians. In an age when wives were usually uneducated, their conversation lubricated the dealings between powerful men. "Sex was part of it, of course," Ms Larsen writes, "but only part of it."

Xue Tao was especially successful. Eventually she retired and was able to live independently—a fate denied most courtesans, who were forced into marriage, concubinage or prostitution. Before that, she spent years in the service of a military governor in modern-day Chengdu in Sichuan. It is said that he asked her to be awarded the title Collator, the office of collecting and combining texts, as recognition of her writing.

Pound was drawn by Chinese poets' focus on images. Nobody saw more clearly than Wang Wei (699-761), who here writes on another Tang theme: going home.

Returning to Mount Song
translated by Stephen Owen

A clear stream lined by long tracts of brush,
There horse and coach go rumbling away.
The flowing waters seem to have purpose,
And birds of evening join to turn home.
Grass-grown walls look down on an ancient ford,
As setting sunlight fills the autumn mountains,
And far, far beneath the heights of Mount Song,
I return and close my gate.

The first couplet sets up a contrast between nature and noise, as the cart trundles beside the water. Then the poet sees the river returning to the ocean and the birds to their nests: Wang Wei wants to leave behind the stresses of government work and retire in peace. The next three lines describe a series of barriers—ancient walls, the forded river and a range of tall mountains. But the last barrier, the gate, subverts them. Behind it lies seclusion and awareness.

Wang Wei was also a painter. He is "a guy that can see", says Mr Owen, the translator. "Always visualising what's there and what's not there." The surface of his poems are often just a series of statements about nature, as in "The Deer Park", the poem Mr Weinberger compares in translation. The details seem natural, but the closer you look the more you find.

Wang Wei was a Buddhist, too. From the age of 30 he studied under a Chan master. This poem is usually thought of as a reflection on the universal desire to withdraw from the hurly-burly of life. Mr Hinton also detects a deeper, Buddhist yearning for meditative peace and enlightenment.

Everybody who experiences poetry across a millennium experiences it in translation

The An Lushan Rebellion of 755 lasted seven years and brought destruction that the Tang Dynasty never fully overcame. Roughly 1,200 of the poems of Du Fu (712-770) are from that time, 80% of what survives. This is about how it feels when the world falls apart.

Spring Landscape *translated by David Hinton*

The country in ruins, rivers and mountains
continue. The city grows lush with spring.
Blossoms scatter tears for us, and all these
separations in a bird's cry startle the heart.
Beacon-fires three months ablaze: by now
a mere letter's worth ten thousand in gold,
and worry's thinned my hair to such white
confusion I can't even keep this hairpin in.

The first line is one of the most famous in all Chinese poetry. Du Fu is stuck in the capital, separated from his wife and children, the country is at war but, as spring comes, the natural world keeps turning. As he reflects on the devastation and the misery, he smiles wryly at the hopelessness of his situation.

Du Fu is writing regulated verse, which sets up a perfect series of parallels visible in the literal translation. Mr Tan points out that in the first couplet Du Fu stands back to contrast the city's suffering with nature's indifference. In the second he draws in: water droplets and birds' cries are now echoing his sorrow. The third speaks of the civil war, comparing it with his own isolation from his family. And the last focuses on the poet himself. He is not falling into self-pity, but gently laughing at his own ridiculous transfer of worry from the ruin of the nation to the security of the hairpin he uses to fix his official hat—mockery all the more penetrating because, as Mr Owen notes, Du Fu never won high office. All that in 40 characters.

In translation you lose the parallelism of Du Fu—indeed Mr Owen and Mr Hinton say that in English end-stopped lines using repeated patterns soon pall. You also miss literary allusions and the resonance of phrases that have entered the Chinese language.

However, Mr Tan observes that translation has one advantage. To the Chinese, voluminous commentaries weigh down these poems, rather as Hamlet's "To be, or not to be" is freighted with overuse. But readers in English coming to this poetry for the first time will find it waiting like Pound's white-silk fan, "as clear as frost on the grass-blade". ■



LAS VEGAS HISTORY

SECRETS OF THE SHALLOWS

LAS VEGAS

A megadrought has revealed a possible mafia murder mystery

THE METAL barrel was rusted and broken. Mud from the drying lake bed obscured its contents, but did not hide them entirely: a woman standing on the shore of Lake Mead screamed when she spotted it. Bones stuck out of the barrel, as if whoever was shoved inside was trying to claw their way out and get to shore. About 300 people have drowned in Lake Mead, a man-made reservoir 30 miles east of Las Vegas that supplies much of the city's drinking water. This was different: the victim was shot to death.

His clothes were from the late 1970s or early 1980s, when Lake Mead's water level was around 100 feet higher than it is today. The barrel would have sunk to the bottom. But more than 20 years of punishing drought have taken their toll. A white ring stains the rust-coloured canyon walls, leaving a visual marker of how far the water has dropped. The emergence of Hemenway Harbour Doe, as the body became known, is the weirdest manifestation of the megadrought so far.

Armchair detectives pondered who was in the barrel. Officials kept schtum while they tried to identify the body, creating an information vacuum that let speculation run wild. Las Vegas was a mafia-run town for decades, and the details of the crime—gunshot, barrel, desert—seem pulled from a Martin Scorsese film. Could it be Jimmy Hoffa? The labour leader with mafia ties disappeared in 1975 and has never been found. Or perhaps someone local? Several men connected to the mob disappeared around the same time Hemenway Harbour Doe was murdered. The barrel's discovery, and the murder mystery it contains, has awakened a curious nostalgia for Vegas's seedy past.

Some think Las Vegas struck a deal with the devil. For years, officials left the mob and their casinos alone because they made so much money for the state. Mob operatives pilfered money from the cash boxes at poker tables and from the "count room", where the house's winnings were tallied.

By the 1970s, the Chicago Outfit was the city's most powerful mob faction. But *mafiosi* could never get a licence to run a casino themselves; they needed a front man. That was Allen Glick, a developer from San Diego. Argent Corporation, Glick's company, bought several dubiously financed casinos in the 1970s, including the Stardust and a resort at Echo Bay, out at Lake Mead.

A man named Johnny Pappas ran the Echo Bay property for Glick's company. He even kept his own boat at the marina. In 1976 Pappas went out to meet someone interested in buying it. He never came home. His family say he feared for his life before he disappeared. If bookies offered odds on the identity of Hemenway Harbour Doe, Pappas would be the favourite—narrowly ahead of George "Jay" Vandermark.

Vandermark oversaw the slot machines at the Stardust, which by the 1970s was run by Frank "Lefty" Rosenthal, a sports-betting genius—and the model for Robert De Niro's character in "Casino", Mr Scorsese's 1995 film about the mafia's reign in Las Vegas. Glick was his boss on paper, but he probably answered to the mob. The slots made a lot of money for both the Stardust and the Outfit. The Nevada Gaming Control Board alleged that Vandermark stole $7m-15m from Argent. He fled Vegas in 1976 when officials cottoned on to his racket, and was last seen in Phoenix later that year.

But who was the trigger man? Back then cash was everywhere, and the bosses in Chicago needed someone to make sure their money actually made it all the

way back to the Midwest. They needed an enforcer.

Enter Tony Spilotro, who arrived in Las Vegas in 1971. He made up for his short stature with prodigious belligerence (Joe Pesci in "Casino"). When Spilotro was coming up on Chicago's west side, his gang allegedly put an ice pick through another man's testicles, and he squeezed his head in a vice until an eyeball popped out. His reign in Vegas was bloody. In 1974, the *Los Angeles Times* reported that there had been more mob killings and violence in the past 24 months than in the previous 24 years. The FBI suspected Spilotro of about two dozen murders, but he was never convicted. He owed that to Oscar Goodman, Spilotro's defence attorney, and, later, a three-term mayor of Las Vegas.

A mafia lawyer turning mayor may seem odd. Not in Vegas. The mafia was part of the fabric of the city. Neighbourhood kids would play baseball with Spilotro's son, or ride to school in Rosenthal's Cadillac. Gangsters would pay for gamblers' chicken dinners at their local casino. Anyone who objected knew to keep quiet. As Michael Green, a historian at the University of Nevada, Las Vegas (and a rare Vegas native), puts it: "There were people who knew it and lived with it. There were people who didn't think about it and lived with it. And there were people who thought about it, had problems with it, but what could they do?"

The Outfit's heyday didn't last forever. By the late 1970s and early 1980s the FBI had all but declared war on Spilotro. Wiretapping investigations exposed the rampant theft at Argent's casinos, leading to the indictments of several Midwestern mob bosses. While they awaited trial, they worried about their allies turning into government informants. Frank Cullotta, one of Spilotro's henchmen, once described the bosses' paranoia to Nicholas Pileggi, a writer who specialises in mob tales. "I've heard them go around a room," Cullotta said. He imitated their conversation: "'Joe, whadda you think of Mike?' 'Mike's great, balls like iron.' 'Larry, whadda you think of Mike?' 'Mike? A fuckin' marine'…'Charlie, whadda you think of Mike?' 'Why take a chance?' And that's the end of Mike."



Today the mafia isn't feared; it's kitsch

Around the same time this paranoia was spreading, Hemenway Harbour Doe was murdered.

Both Vandermark and Pappas had been insiders. Did they know something they shouldn't? Were the bosses worried that they would talk in exchange for immunity? Was Spilotro sent to keep them quiet? Maybe they met peaceful ends nowhere near Lake Mead. Or perhaps if Hemenway Harbour Doe is ever identified, one of them will at last be found.

PAST MEETS PRESENT

Vanishingly few Las Vegans who remember the 1970s are still around. Mr Green was just a kid when his father dealt cards at the Stardust. Rosenthal fired him personally during one of his regular power trips. He would line employees up, Mr Green recalls his father telling him, pointing to each worker in turn as he decided whether they could keep their job that day.

Those days are long gone. Spilotro and his brother were found buried in an Indiana cornfield in 1986. By the mid-1990s, the mob had been priced out of the casino business, and casino security had become too sophisticated to beat. The Stardust was levelled in 2007. Its 1,000 hotel rooms seem quaint compared with the 4,000-room behemoths built by billionaires and multinationals. Once just a centre for sports gambling, Las Vegas now has its own professional sports teams.

These days, Mr Goodman, now 83, is the unofficial mascot of Las Vegas. Every few months he hosts a dinner at a hotel steakhouse where he regales his guests (who pay at least $300 a table) with stories about Rosenthal, Spilotro and his other clients. Martini in hand, he reminisces about playing himself in "Casino". He marvels at Mr Pesci's mimicry of Spilotro's mannerisms. He still uses the vocabulary of old Vegas, when women were "broads" and men were "fellas".

Mr Goodman chafes at the speculation that Spilotro may have had something to do with Hemenway Harbour Doe's death. He rails against reporters and law enforcement for describing his friend as a cold-hearted killer. He prefers to remember the softer side of Tony, recalling how the mobster would check on his wife Carolyn (now in her third term as mayor) when he was out of town defending the Syndicate. If the mob wanted to get rid of a body, he muses, they would just dig a hole in the desert. Why go all the way out to the lake? It is tempting to believe him. He probably understands, better than most, how the mob worked. Or maybe he just zealously defends his clients, dead or alive.

Mr Goodman's storytelling and Hemenway Harbour Doe's emergence have something else in common. They link the city's mafia days to the modern metropolis it has become. Today the mafia isn't feared; it's kitsch. The Mob Museum (Mr Goodman's idea) opened in 2012. Nearly 400,000 people visit each year. They can buy "I know a guy who can take care of it" T-shirts, or key chains with their names engraved on a bullet.

Hemenway Harbour Doe reminds locals that less than one lifetime ago their city was a centre of the criminal underworld. Lake Mead may offer more reminders: since the corpse appeared, five more sets of remains have emerged. No foul play is suspected. But the drought will worsen, the shoreline will retreat, and the waters will give way to dry, cracked earth. What other secrets lie waiting in the shallows? ■

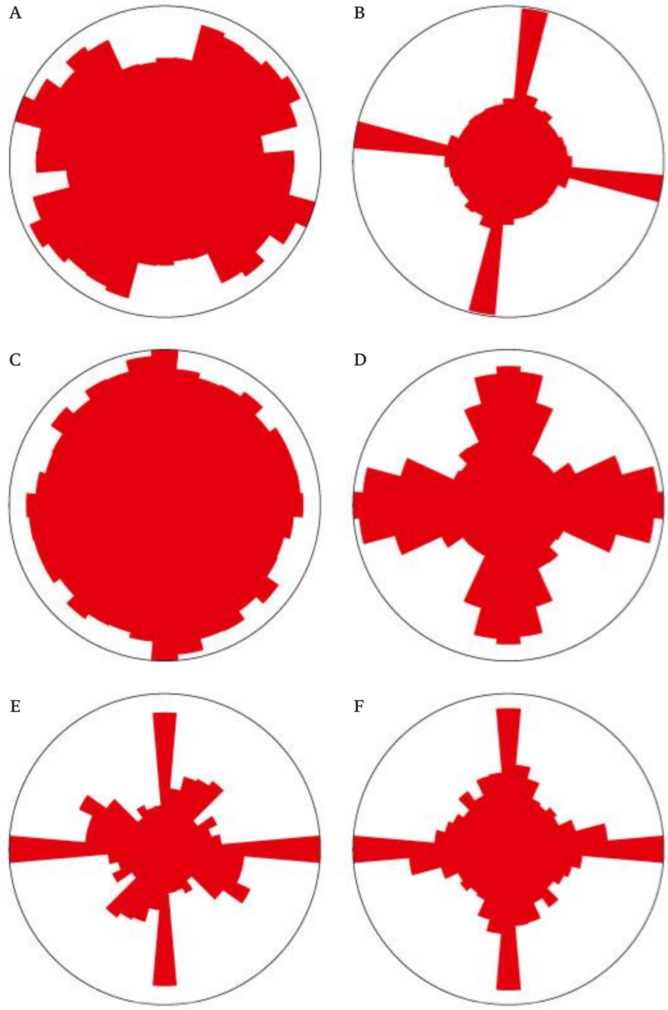
CHRISTMAS CONUNDRUMS

WHERE ON EARTH?

Some fiendish festive fun

HOW WELL do you know the world's cities? There are six to find using the clues on the right. The polar histograms should give you an idea of how orderly or haphazardly each city's streets are arranged (see our story on grid cities for examples). There are four other pointers for each location in the same order if you get lost, from population to liveability based on measures like stability, culture and infrastructure. Send your answers to cityquiz@economist.com for a chance to win a food hamper.

For something even more urbane, try our drinks quiz featuring eight themed rounds of linked questions. There's a magnum of champagne for one winner chosen at random. To take part, pop along to economist.com/DrinksQuiz.



POPULATION, 2022 ESTIMATE (MILLION)
A. 11.1
B. 5.1
C. 22.4
D. 21.8
E. 32.1
F. 15.4

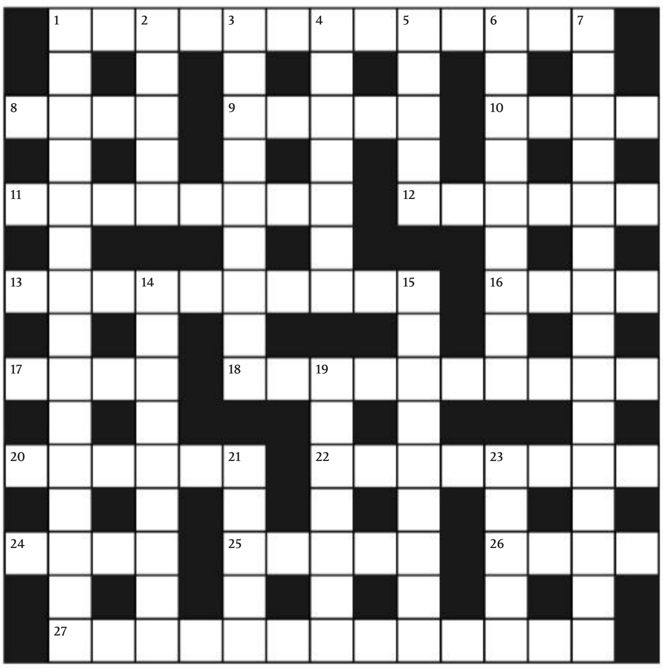
AVERAGE ANNUAL TEMPERATURE, °C
A. 11.7
B. 18.0
C. 19.5
D. 22.1
E. 24.6
F. 26.7

ALTITUDE (METRES ABOVE SEA LEVEL)
A. 35
B. 3
C. 760
D. 23
E. 216
F. 41

LIVEABILITY SCORE /100
A. 93.6
B. 94.7
C. 65.8
D. 47.6
E. 56.3
F. 32.2

CHRISTMAS CROSSWORD

For hints, tips and answers, visit **economist.com/Xword22**



ACROSS

1 A billion goats uncontrollably crossing borders (13)
8 An American in California (4)
9 Delivers welcome on board ship (5)
10 Eat the head off a plant (4)
11 Cryptic baker's suddenly successful (8)
12 Count on the wagon being covered by paperback (6)
13 Exclusive polo-playing circuit (6,4)
16 Nameless drunk staggers out of northern Iraq (4)
17 In a scandal he'd be stretched (4)
18 Critics celebrated 1950s blonde featuring clip taken from the *Times* (10)
20 Helps a hundred strays, what a drag! (6)
22 Black humour before almost everything (8)
24 A mass read after Juliet's passing (4)
25 Craze ridiculously indulged in by resident of Baku (5)
26 A parliamentary regime (4)
27 Group gets in an alto to be lead singer (8,5)

DOWN

1 The moment for Americans in 2024: mess with a green cat getting the cream (7,8)
2 440 degrees (6)
3 Sailors' mistake encoded without the top missing (9)
4 Assemble model virion on the lab bench (2,5)
5 Builders like a spade, say (5)
6 One hollow, one rig, one suspect (9)
7 Little boy's gun truly follows patent in Brazil (7,8)
14 Pick a two-ball innings (6,3)
15 Retro following suited Northern Ireland's highland party (9)
19 Stuff up rich cheese (7)
21 A dynamic starchitect (5)
23 Horse show without anyone in the saddle (5)

THE WORLD AHEAD 2023



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The Economist



Ghana and the IMF

Finding faith in the fund

DAKAR

The International Monetary Fund bails out Ghana again

KEN OFORI-ATTA, Ghana's finance minister, is fond of invoking scripture in speeches on the economy. Recently, as the country defaulted on its domestic debt, he found solace in the first book of Samuel saying "nothing will be lost, nothing will be missing." Yet the Bible is a poor guide to macroeconomics. Holders of domestic bonds stand to lose a good chunk of money. Now foreign creditors are getting a buzz cut, too. On December 19th Ghana suspended interest payments to foreign creditors, in effect defaulting, pending talks.

It has also appealed to the high priests of economic orthodoxy, agreeing to a preliminary $3bn bail-out (about 4% of GDP) from the IMF. It needs the help. Public debt is above 100% of GDP and local and foreign interest payments eat up 70-100% of revenue, according to Mr Ofori-Atta. Inflation is running at 50% and the central bank has raised its main interest rate to 27%. In past crises Ghana has wisely called in the IMF early to head off trouble and avoid spending cuts that were too painful. This time, however, it dallied for so long that austerity alone will not save it.

The government blames covid-19 and surging global inflation for its pickle. Yet its troubles can also be traced to overspending, excessive borrowing and overconfidence. This is hardly new. Ghana's governments tend to blow their budgets to win votes in election years. But recent splurges were funded largely by foreign-currency bonds, making Ghana especially vulnerable to swings in exchange rates.

Nonetheless Mr Ofori-Atta was far from contrite as he announced the deal with the IMF. "Let us all gather the harvest with joy," he proclaimed. He even thanked his disgraced deputy, Charles Adu Boahen, who was sacked by President Nana Akufo-Addo last month after being accused of asking for a $200,000 fee to set up a meeting with the vice-president. The triumphalism will rile long-suffering Ghanaians. Many think Mr Ofori-Atta, a cousin of the president, should himself have been fired for poor management of the economy.

The fund's deal will bring pain. But it also offers hope. It aims to slash debt to 55% of GDP in the medium term, perhaps by 2028, and the costs of servicing foreign-currency debts to 18% of government revenue. Next year's budget includes spending cuts worth 2% of GDP. (A vast national cathedral that Mr Ofori-Atta lavished $58m of public money on will remain a stalled building site.) Social programmes will be protected, says the fund, though some worry Mr Ofori-Atta's promise to review them for efficiencies may be a pretext for more cuts. The agreement is already boosting confidence in Ghana's economy. The currency, the cedi, had slumped all year but has leapt since the bail-out was announced (see chart on next page).

The government is trying to make progress on a debt restructuring, a condition of the deal. In early December Mr Ofori-Atta said the holders of domestic bonds worth 137bn cedis ($15.2bn) should swap these for ones paying a lower rate of interest and that will be repaid over a longer period. The exchange, which was meant to ▸▸

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be completed by December 19th, would represent a loss of about 50% of the value of the bonds, reckons J.P. Morgan, a bank.

This would create a new set of problems. Ghana's banks are heavily exposed to government debt. For some it represents more than half of total assets. A huge hit to the banking system could cause lending to plunge, which would in turn hurt the wider economy. The biggest danger will be next year, when the government's replacement bonds will pay no interest at all, warns Ernest Addison, the governor of the Central Bank of Ghana. "Straight away there are issues of liquidity," he says.

Ghanaians are already pulling money out of mutual funds, says Frederick Duvor of Apakan Securities, a brokerage firm in Ghana. "People want to salvage what's left of their investments." Pension schemes will be hit, too. By the time many pensions are paid out, "it will be worth close to nothing," he worries. Banks, pension funds and insurers have all demanded better terms. Last week the government blinked and extended the deadline to the end of the year. It may also tweak the scheme.

Nervous policymakers are trying to prop up the banks. The central bank will loosen liquidity and capital-adequacy requirements. The government promises that a donor-backed fund worth 15bn cedis will help ensure financial stability. Mr Addison says the World Bank has committed $250m to it. All this should help. Yet when asked if he is therefore not too worried, Mr Addison simply says, "It is early."

Garnering debt

Investors holding $13bn of Ghana's foreign-currency bonds will not get off lightly, either. The government has previously floated talk of a 30% cut to the face value of the debt it will repay and suspension of some interest payments. This, too, may result in a fight, though some bondholders say they expect a relatively quick deal.

There are plenty of longer-term obstacles to Ghana's recovery. Badly hit banks will not lend much for as long as it takes them to rebuild their balance-sheets. Interest rates will remain eye-watering for some time. Government spending will be austere for years. And the weak global economy will be a drag on growth, too.

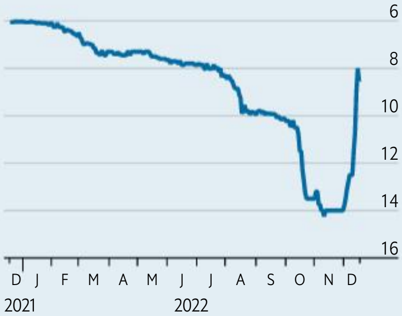
Yet Ghana has been here before—16 times in fact. All those crises and bail-outs have not stopped it from becoming the richest country in continental west Africa as measured by income per head. It has a relatively educated workforce and widely available (if pricey) electricity. Some of its loose spending went on much-needed infrastructure. "We could actually get quite nice growth within two or three years," reckons Charles Robertson of Renaissance Capital, an investment bank, "led by cheap currency and a low debt overhang."

Ghana has one other formidable advantage: a surprisingly resilient reputation with donors and foreign investors based on its robust democracy, record of development and its leaders' knack for selling a good-news story about the country. That Ghana managed to clinch a deal with the IMF in less than six months suggests its reputation as a country worth backing remains miraculously intact. Other donors are likely to follow suit.

The recent surge in the cedi suggests some investors are already believers again. If the global economic picture improves, more may be tempted back. That would give Ghana a leg-up. But before it is able to emerge into this promised land of growth, its people face a painful journey. For this they blame the government, despite its repeated appeals to a higher authority. ■

Cedis of hope

Ghanaian cedi per $, inverted scale



Source: Refinitiv Datastream

Urbanisation gone nuts

Shell companies

ZANZIBAR

What the price of Zanzibari coconuts says about development

MUSA HAIDAR holds a coconut to his ear and shakes it from side to side. Its sloshing pleases the market trader, who puts the large brown ovoid back atop the pile at his stall on the outskirts of Zanzibar City, the main one on the east African island.

His customers are less happy, however. A coconut going for 500 Tanzanian shillings ($0.20) a few years ago today sells for 1,500 shillings. That makes it more expensive to whip up curries or other dishes using coconut milk. "The prices you see," says Mr Haidar, "they're not normal. Coconuts have become expensive for local people."

Why have prices gone nuts? "People are chopping, chopping," explains Omar Yusuf Juma, another coconut seller, swinging his machete for effect. A count in 2013-14 found just 3.4m coconut trees, down from 5.7m in the late 1990s. Since hungry Zanzibaris still demand creamy fish curries and beans baked in coconut milk, falling supply has led to higher prices. Nuts from the mainland are pricier because of high transport costs.

The felling of coconut trees reflects how Zanzibar and the rest of Africa are urbanising. The defining feature of Africa's expanding cities is sprawl: cities are oozing outwards rather than growing upwards. As Zanzibar City has spread farther into erstwhile countryside, when people move to their new plots they chop down the coconut trees to make space for their new homes.

Moreover, some houses, as well as many island hotels, have furniture made from coconut wood. Emmanuel Elias, a carpenter, explains that it is cheaper than imported alternatives. By law farmers cannot chop down fruit-bearing trees for furniture; in practice it is hard to stop them. Even if they abide by the rules, many do not plant new trees, since these take at least six years to produce fruit, and 15 years to reach maximum production levels. State subsidies for seedlings have proved no match for urban population growth.



They keep climbing

In his workshop Mr Elias dusts off a sleek dressing table he is selling for 400,000 shillings. He points out the striking black dots inside the grain that are the hallmark of coconut wood. "This is the land of coconut trees," he says. But for how much longer?

Tunisia

An election with no voters

DUBAI

A farcical ballot is a finishing touch to the president's power grab

THE LAST time voters in La Goulette, a suburb of the Tunisian capital, had to pick a representative in parliament, it was a complicated choice. No fewer than 56 parties fielded candidates for their district. They had a rather easier time of it in Tunisia's parliamentary election on December 17th: only one candidate was on the ballot. It is hard to imagine that there was very much suspense in his campaign headquarters as the results came in.

This was the climax of a 17-month power grab led by Kais Saied, the country's authoritarian president. In July 2021 he suspended much of the constitution and sent the army to bar the doors of parliament; he later dismissed its members. He went on to sack judges; install loyalists in key agencies, including the electoral commission; and harass and arrest critics. This summer he hastily shoved through constitutional changes to dilute parliament's power.

In a grim bit of irony, the election came 12 years to the day after Muhammad Bouazizi, a street hawker, set himself on fire to protest against extortion by the local police. His death was the spark for the overthrow of Zine el-Abidine Ben Ali, the longtime dictator, the creation of a flawed but real democracy in Tunisia, and the Arab spring more generally.

By the time Mr Saied was elected in 2019, many Tunisians had come to despair of their post-revolutionary politicians, who seemed more interested in fighting each other than fixing problems. The president has lived up to his promise to change the political system. Yet he has done almost nothing to tackle the economic mess that caused so much of the public's anger, which may soon be directed at him.

Mr Saied, who blames political parties for much of the deadlock, sought to reduce their role in this election: party logos, for example, were not displayed on ballots next to the names of candidates. Major parties decided to boycott the poll, and only 1,058 candidates met the requirements to run for 161 seats.

Beyond La Goulette, nine other districts had one-man races. Elsewhere the choice was even simpler: seven of ten constituencies that represent the diaspora had no candidates. The Tunisian embassy in London did not bother to open a polling station because there was nobody to vote for.

Even where races were competitive, the candidates were often nobodies. The party boycott left a motley crew of individual candidates—anyone who could gather 400 signatures and self-finance a short campaign. Many Tunisians had no idea who was on the ballot. The electoral commission wound up affixing a headshot of each candidate next to his (rarely her) name: instead of voting for parties, voters could opt for the candidates with the best hair.

Turnout was predictably low, with only about 800,000 of the country's 9m registered voters bothering to show up. Mr Saied had promised that the new parliament, freed from the shackles of party politics, would be the most democratic in Tunisia's history. Instead he delivered a legislature elected by less than 9% of voters.

The Salvation Front, an opposition group, quickly called for protests and demanded that Mr Saied step down. So did Abir Moussi, who ran against Mr Saied in the presidential election of 2019. The front includes Ennahda, an Islamist party that has been a powerful force in Tunisia's democratic politics, whereas Ms Moussi is a staunch anti-Islamist and self-professed admirer of the deposed dictatorship. That such ideological opposites find themselves aligned against Mr Saied says much about his dwindling support.

At first his self-coup in 2021 had wide backing from a frustrated public. Polls showed his approval ratings above 80%, unprecedented for a Tunisian president (or, indeed, for most politicians). But his popularity was short-lived. Official turnout for the constitutional referendum in July was a mere 30%, and many think that number was inflated. His poll numbers keep sliding. Few Tunisians turn up for pro-Saied rallies.

There is little optimism that Mr Saied's government and his new rubber-stamp parliament will do much to turn around the economy. The diagnosis has not changed much: Tunisia is unproductive. It has a bloated public sector with one of the world's highest wage bills (18% of GDP). State-run companies are uncompetitive. Decades of underinvestment in the poorer south and west have left those regions lagging far behind Tunis, the capital.

If the root causes are unchanged, though, the symptoms have worsened. The economy shrank by almost 9% in 2020 and growth remains sluggish. Soaring food and energy prices this summer caused a balance-of-payments crisis, with shortages of sugar, butter, cooking oil and other staples as imports languished at ports. Even bottled water has been rationed. Annual inflation jumped to 9.8% in November. It is a truly unhealthy democracy that announces a voter-turnout figure lower than its headline-inflation rate.

What has saved Mr Saied, until now, is apathy. If he cannot organise big rallies, neither can the opposition: most Tunisians are too disgusted with politics (and too busy trying to survive) to take to the streets in protest.

But Mr Saied cannot rely on the public's quiescence for ever. A debt-to-GDP ratio of around 90% looks ominous. A hoped-for deal with the IMF remains stalled, in part due to opposition from the UGTT, a powerful trade union. More shortages and price rises—and perhaps protests—are likely next year. Mr Saied has done much to return Tunisia to one-man rule. His inattention to the economy, however, means he may not long remain that man. ■



A lonely president votes for himself



Christmas in Kharkiv

Peace on Earth

KHARKIV

Ukrainians celebrate despite the cold and the Russians

THE GUNS are now silent in North Saltivka, a neighbourhood on the north-eastern edge of Kharkiv, but war is everywhere to be seen. Charred, splintered white apartment blocks stick out from the soil like bones in a burial ground. Trenches still cut across play areas and football fields. Among the ruins Yevgeny Zubatov, 32, is walking with his seven-year-old son Danya. He has come to pay respects, he says, to the apartment he abandoned when war broke out on the morning of February 24th. He makes the trip every weekend, bringing a thermos flask so he can drink a cup of tea within his own four walls—or three and a half, as they are now. He has brought some chocolates this time, a nod to the upcoming holiday season. But he says he is in little mood to celebrate. "My New Year is just about my son. We are carrying on for him."

Mr Zubatov's melancholic mood is not unusual in Ukraine's second city, which lies just 35km (22 miles) from the Russian border. Russian artillery has been pushed back beyond firing range of the city, but it is unclear whether Kharkiv will ever return to its pre-war life. A local enterprise now makes flak jackets for small children (pictured), to wear during evacuation. At least half of the pre-war population of 2m has left, including the vast majority of the 300,000 who lived in North Saltivka.

In the most affected area, the easternmost Saltivka 3, residents struggle on despite the absence of even basic infrastructure. They warm themselves using wood-burning stoves, ventilated through holes in boarded-up windows. A green tarpaulin "invincibility point", provided by the central government, provides a last line of support. When Russian rockets took out electricity and water on December 16th, the tent was overflowing with residents looking for a Starlink internet connection and hot drinks. For many of them, alcohol was a quicker route to invincibility.

Father Valera, an Afghan war veteran turned local priest, says the worry of staying warm has amplified the anxieties of people struggling to come to terms with the war. "I see the spiritual pain in everyone I speak to in Saltivka, including children," he says. "Their eyes flick all over the place. They shudder when doors slam." At the height of fighting in February and March, the basement of Father Valera's chapel became a shelter for over 50 people. Services continued even as missiles blew out the windows above ground.

Now, the priest is looking for new ways to help his parishioners recover psychologically. Christmas was as good a place as any to start, he said; he expected a delivery of trees and decorations in the coming days. But there are no plans to follow a government proposal to switch observance of Christmas to the Western date of December 25th. Father Valera's church is part of the controversial, Moscow-aligned branch of the Ukrainian Orthodox church, and so will celebrate on January 7th—just as it always has.

For a long time, city authorities were unsure about their own celebration plans, especially given the blackout orders that have been in place since the early days of ▸▸

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war. Mayor Ihor Terekhov, who has promoted himself as the face of Kharkiv's brave resistance, said at one point he considered cancelling the seasonal programme. In the end, he couldn't bring himself to do it. "War has taken enough away from our children," he said. Instead Kharkiv will put on a limited programme of events, all underground. On December 19th the mayor unveiled a tree at the University subway station, just underneath its usual spot on Freedom Square. "There was no way of justifying placing one above ground since there have been direct impacts on the square already," the mayor said. "The enemy has the co-ordinates."

The highlight of Kharkiv's Christmas programme is a new musical show, "The Ice Lady", which will be performed thrice daily on the platform of the University station. The director, Alexei Nastachenko, said the show would eschew any mention of war. But the motifs aren't hard to decipher: in a terrible land, not so far away, a witch has turned everything to ice. One day she resolves to do the same to the play's hero. The hero resists, and after a valiant struggle is saved by love, friendship and all good things. The witch melts away. "Wartime Kharkiv has been united by a fantastic desire to love one another," says Mr Nastachenko. "When this all ends, we will be the happiest people on Earth."

Sociologists tracking Ukrainian public opinion have noticed trends that back Mr Nastachenko up. Alexei Antipovich, whose Rating polling agency compared the mood before and during the war, says Ukrainians are, paradoxically, surer of their future than before the war began. Having a common enemy has consolidated a once fractured nation: "The difference across religions, geography, language and age has not just become less. It has disappeared completely." Ukrainians have become more optimistic, and have higher opinions of themselves, their fellow citizens and the state. Fully 97% of them now believe Ukraine will win the war.

That hope is shared even in the ruins of North Saltivka. The residents who stayed say they learned a lot about their own resilience. "Our story is about realising we are stronger than we thought we were," says Tatyana Protsenko, who gave birth to a baby daughter in October despite staying in an apartment block that was struck by artillery eight times. Her husband, Yehor Bezuglov, agrees. In the most desperate of times, neighbours found one another: they looked each other in the eye, and liked what they saw. The hope is that now they will be given a chance to rebuild their shattered lives together. But fear of the Russians remains, he says; if anything, it has increased since the guns stopped. "You get used to the guns. Silence is the worst thing. It's when the fear starts all over again." ■

The pope and the war

No room in the middle

ROME

Francis has failed to mediate in Ukraine

WHENEVER POPE Francis looks up from his writing, he is reminded of Ukraine. On his desk sits an icon he acquired while archbishop of Buenos Aires as a parting gift from one of his bishops, Svyatoslav Shevchuk, who in 2011 returned to Kyiv to lead the Ukrainian Greek-Catholic church. It was among the few possessions Francis brought to Rome. The depth of his concern for Ukraine became obvious on December 8th when he was moved to tears as he mentioned its suffering at a ceremony in Rome.

Yet as Christmas nears, it is clear that Francis's efforts to position himself as a mediator between Russia and Ukraine have failed. The pope is an outsider in a clash between two mostly Orthodox countries. He has also repeatedly antagonised both Ukrainians and Russians with his statements and omissions.

Early in the war, the pope condemned the invasion as "unacceptable armed aggression", denounced the Bucha massacres and kissed a Ukrainian flag sent to him from the town. In an interview he warned the head of the Russian Orthodox Church, Patriarch Kirill, not to become "Putin's altar boy". But he did not identify Russia as the aggressor. In an interview published in June he seemed to reach out to Russian leaders, saying the invasion was "perhaps somehow provoked" and cautioning against viewing the war as a simple tale of good versus evil.

More recently he has been more critical of the Kremlin, particularly after meeting with Archbishop Shevchuk on



Still can't see the obvious

November 7th. Last month he irked the regime in Moscow by declaring that troops from two ethnic minorities, the Chechens and Buryats, were the cruellest. The Vatican has since issued a highly unusual apology.

This zigzagging reflects some of the outstanding characteristics of Francis's papacy. He is open to interviews and reluctant to heed the Vatican's official diplomats, instead forming his views in conversations with a changing circle of interlocutors. But the first Latin American pope also has a deep mistrust of the United States and believes that the Vatican's place lies somewhere between the West and its enemies. His failure to see the obvious in Ukraine highlights the limits of such attempted equidistance.

Death in France

The last taboo

PARIS

A citizens' assembly debates legalising assisted dying

FEW ASPECTS of life are as sensitive as the leaving of it. Such is the taboo about death and how to manage it in many parts of Europe that France has decided that its debate about whether to legalise assisted dying should be taken out of the hands of politicians. On December 9th a citizens' assembly made up of 150 randomly selected people began a public debate that will shape the way France approaches the legal and medical management of death.

Over nine weekends between now and the end of March 2023, the newly established citizens' assembly will meet in Paris. Officially its remit is to discuss the "end of life" rather than "assisted dying". The question that Elisabeth Borne, the prime minister, set participants when she launched the convention was open-ended: "Is the current framework surrounding the end of life well-adapted to the different situations that arise, or should changes be brought in?" It is clear, however, that what is up for discussion is whether to legalise assisted dying.

France already passed a law (in 2016) that strengthens a doctor's obligation to respect the wishes of those who are terminally ill and who do not want to prolong life with medical treatment, in order to en-

able people to "die with dignity". Doctors can deeply and continuously sedate terminally ill patients who are suffering and close to death. They must make these options available and respect a patient's wishes to exercise them. French law, however, does not allow assisted dying. This means the supply of lethal drugs, under defined and controlled circumstances, by doctors to terminally ill patients, administered by either the patient or a medic.

Assisted dying is just as controversial in Europe as elsewhere in the world. Only a few countries on the continent currently allow some form of the practice. They include Austria, Belgium, Germany, the Netherlands, Spain and Switzerland. But many countries are debating the issue. On December 9th the Portuguese parliament passed a bill to legalise assisted dying, although previous votes have been overturned by presidential veto.

President Emmanuel Macron has been careful not to express a view publicly. By setting up the assembly, though, he is implying that the law needs to change. Those close to him say that he thinks that French law should give people greater control over the end of their life, in order to avoid "inhumane situations", but that he is uneasy with the most permissive legislation. Mr Macron raised the subject on a recent visit to the Pope, who deems suicide a grave sin. (This is, after all, Catholic doctrine.) The Council of Christian Churches in France has called for better use of palliative care, under existing law, rather than anything that assists death.

This is not the first citizens' assembly that Mr Macron has set up. A previous one, brought in back in 2019 in response to the *gilets jaunes* (yellow jackets) uprising against a rise in the carbon tax on motor fuel, was about how France should respond to climate change. But the subject was so vast, and the proposals that emerged so numerous (149), that it lacked focus. Mr Macron also made the mistake of promising upfront to take on board all its recommendations with "no filter". This pledge was practically unworkable, and irritated parliamentarians, who felt they had been robbed of a job.

After this more narrowly focused citizens' assembly reports back in the spring, a law could follow before the end of 2023. The legalisation of assisted dying in France, if that is what is decided, would mark the biggest single piece of social legislation on Mr Macron's watch. A poll in October found that 78% of the French are in favour, although the debate may yet prove acrimonious. When the previous president, François Hollande, legalised gay marriage, it drew howls of protest from Catholic traditionalists. The challenge for Mr Macron will be to leave his mark on French society without dividing it. ■

Tension in Kosovo

Balkan barricades

RUDARE

On the brink of a fight with Serbia

In the village of Rudare locals wander in the street and warm their hands on flaming braziers. Lorries block the road. A car disgorges a group of masked men. On December 10th barricades were erected across the north of Kosovo, where most inhabitants are ethnic Serbs. Diplomats from America and the European Union are working overtime to defuse an explosive situation. On the walls of the ethnic-Serbian part of the nearby divided city of Mitrovica, someone has been spray-painting the crest of a mysterious "Northern Brigade". Whether it is a secret paramilitary organisation or a campaign to make people believe there is one—no one knows. "We are waiting!" says the stencil.

Since the end of the Kosovo war in 1999, crises have come and gone in the country's north. Diplomats rush in, and the barricades come down. But this one feels more dangerous than usual. In November the representatives of Kosovo's Serb minority withdrew from the country's government institutions. That included the ethnic Serbian members of Kosovo's police force in the north. Kosovo has sent ethnic Albanian policemen to replace them. But Tatjana Lazarevic, editor of KoSSev, a local news site, says they face "huge mistrust" among locals, who see them as an "occupying force".

Until 1999 Kosovo was a repressed southern province of Serbia with a large ethnic-Albanian majority which wholeheartedly backed separatist guerrillas. During the fighting, Serbia began expelling hundreds of thousands of ethnic Albanians from their own homes. NATO intervened and established a UN protectorate, which declared independence in 2008.

But Serbia rejects that claim. It is supported by Russia, its longstanding great-power patron, which is allergic to Western interventions anywhere (and not so troubled by ethnic cleansing). The current tensions began in June, when Kosovo changed the rules for people entering with Serbian documents. With war raging in Ukraine, a violent Balkan flare-up would distract America and Europe, and serve the interests of the Kremlin.



On December 15th Albin Kurti, Kosovo's prime minister, handed in his country's application to join the EU. On the same day Aleksandar Vucic, Serbia's president, asked NATO, which ensures Kosovo's security, to permit up to 1,000 Serbian troops to return to Kosovo. Such a possibility was envisaged in the UN resolution which ended the Kosovo war in 1999, but today the notion is ludicrous. There is no "time machine" for Serbia to reverse two decades of history, scoffs Mr Kurti. On December 1st Mr Vucic publicly called Mr Kurti "terrorist scum". "Tensions have never been higher in 20 years, mistrust has never been deeper," says Miroslav Lajcak, who leads the EU's diplomacy in the region.

There is little risk of the Serbian army openly rolling into Kosovo's north. But the Serbian government could try to emulate the strategy of "little green men" which Vladimir Putin used when he seized Crimea from Ukraine in 2014: infiltrating unmarked soldiers without officially acknowledging their allegiance. Western powers are trying to negotiate an end to the crisis before any violent confrontation takes place. An incident in which either Serbs or Albanians die could spark a conflagration. Diplomats find Mr Kurti stubborn. But Mr Vucic has lost much credit by refusing to apply sanctions on Russia. In September Serbia and Russia signed an agreement to consult on foreign policy.

Mr Kurti says he is ready to find a solution and normalise relations between Kosovo and Serbia. Yet it is unclear whether he or Mr Vucic can accept the trade-offs that diplomats are proposing. They require that Serbia treat Kosovo like a state, albeit without formally recognising it. Kosovo must implement an agreement it signed in 2013 (though it was rejected by Mr Kurti, who was then in opposition) to form an association of Serb-majority municipalities with autonomy over education, health care and other portfolios.

The problem, says one diplomat, is that relations are now so bad that the leaders of Serbia and Kosovo "are living on two different planets". On planet Rudare, meanwhile, many locals are no happier with the stand-off than anyone else. A teacher manning one of the village's barricades says he was ordered there by his school's director. "We are hostages of Belgrade and Pristina," he says, referring to the Serbian and Kosovar capitals. ■

Charlemagne | Food of the frauds

Europe's traditional dishes are not always what they seem



Trudging around Prague's narrow streets makes for hungry work. What better way to cap off a spot of sightseeing than with a local delicacy? How about a *trdelnik*? Throw a cobblestone in any direction in the Czech capital these days and it is likely to land on a stand peddling the unpronounceable snack. Think of it as a Danish pastry crossed with a rotisserie chicken: sweet dough is wrapped around a metal spit and theatrically twirled over glowing charcoals until browned, then dipped in nuts and sugar. The "old Bohemian speciality" advertised by the jolly vendor warms the hands on a chilly wintertime stroll; in summer it can be used as an ice-cream cone. Either way, for a few tasty minutes one can imagine oneself a burgher of medieval Prague, indulging a sweet tooth while traipsing over Charles Bridge. *Dobrou chut!*

The only glitch in this alluring daydream is the fact that *trdelnik* is no local snack at all. Nobody in Prague recalls seeing this supposed Czech staple for sale until about a decade ago. Even today, *trdelnik* scent blankets the touristy bits of Prague like a smog, but is hard to find anywhere else. Food sleuths place *trdelnik* as a delicacy from Romania or Slovakia, no more authentically Bohemian than a Big Mac. The allure to vendors is clear: the margins flogging a bit of warmed-up dough for 70 crowns (around $3) would have executives at McDonald's salivating. Tourists see something plausibly authentic—how would they know?—and ask few questions.

Europe paints itself as a land of food and tradition, and perhaps most of all as a land of food traditions. The French invented the restaurant, Italian food is the world's most popular and Europeans consider wine made anywhere other than their little peninsula as a variant of rubbing alcohol. France, Spain and Italy hold the record for the amount of time spent at the table each day: an impressive two hours, twice the figure of burger-gobbling Americans. Traditional foods are protected by EU schemes to ensure that only an authorised caste can produce feta cheese, Champagne or *Prosciutto di Parma*; UNESCO recently lauded the baguette as part of humanity's cultural heritage. But as with *trdelnik*, there is sometimes more to European grub than meets the palate.

Take *ciabatta*. Italy's now-ubiquitous bread is paraded as a timeless Italian classic, perhaps once baked in the earthen ovens of ancient Rome. In fact the elongated loaf was devised in 1982 by Italian bakers trying to fend off the French baguette. Belgian beers top global league tables, known for their alcohol content, which can exceed that of wine. Is that distinctive feature the outcome of brewing traditions devised by the various monks and friars featured on the beers' labels? Pish. The strength of low-country beer is a modern regulatory dodge. In 1919 Belgian taverns were banned from selling spirits, a prohibition that lasted until 1983. Drunks in search of an efficient tipple nudged breweries towards making *dubbel*-strength beers. *Tripels* followed soon enough.

The dairy lobby is a keen fabricator of heritage. It is largely down to Big Cheese's Swiss arm, the *Schweizerische Käseunion*, that fondue has emerged as Switzerland's national dish. Facing a glut of Gruyère and Emmentaler in the 1930s as exports melted, cheese-peddlers proclaimed the Alpine virtues of a dish consisting overwhelmingly of cheese. British farm labourers of yesteryear were unfussy about their mid-day meals. Nevertheless in the 1960s the Milk Marketing Board revived the idea of a cheese-laden Ploughman's Lunch, now a pub staple. As skimmed milk gained popularity in Ireland in the 1970s, a new way to use surplus cream was needed. Thus Bailey's Irish Cream (a sickly mix of whiskey, cream and cocoa extract) was born. An Irish meadow on its label suggests centuries of heritage; in fact it is younger than Liam Gallagher.

Governments trying to nudge the populace towards new foods are nothing new. The potato went from South American curio to European favourite thanks in part to 18th-century French efforts to diversify away from wheat. Antoine-Augustin Parmentier, its keenest promoter, stationed armed guards around a potato patch to make it seem valuable and removed them at night so that peasants would steal and plant the tubers. Polish authorities in the 1940s started peddling carp—a bottom-feeding fish that tastes like muddy pond—in the absence of more flavourful fish. "A carp on every Christmas table" was advised; the fish (previously mostly a Jewish delicacy) was handed out to workers as festive bonuses. It has endured as a holiday staple. An even more ambitious fish-peddling scheme was later devised by Norway. In the 1980s supply of salmon exceeded domestic demand. Japan seemed an obvious market, but only tuna and sea bream were considered acceptable to eat as sushi and sashimi: at the time, the Japanese were as likely to eat raw salmon as an Italian to dip his spaghetti in mayonnaise. One marketing blitz (and a few discounted consignments of Norwegian salmon) later, a new tradition of orange sushi was born.

Grubby business

Why label a food traditional when the claim is so dubious? It is a type of marketing to which gourmets are predisposed. "Tradition, whether real or not, does seem to add an extra element of tastiness" to what we eat, says Megan Elias of Boston University, editor of *Food, Culture & Society*, a journal. Food goes into our bodies, into our faces even. A dish can connect people across time—if the eater believes it to be authentic.

Cookbooks, those archives of countries' cuisines, first became popular in the latter 19th century, not coincidentally a golden era of European nation-building. For what forges a people into a nation? Some will say allegiance to a flag, a shared language or currency. Yet Italians are likely to have stronger feelings about how to cook pasta than about the symbols on their banknotes. The mouth and the heart are connected like no other organs. A Greek can enjoy pickled herring and a Finn a pint of Guinness, but not like a Swede or a Dubliner. They will feel no more sense of traditional connection than a Czech biting into a *trdelnik*. ■



Immigrants and their children

A way in the world

WELWYN GARDEN CITY

The children of eastern Europeans who moved to Britain after 2005 are now teenagers. They are an optimistic, confused bunch

IT IS THE last day of term at the Polish Saturday school in Welwyn Garden City, north of London. A group of teenagers spills from a classroom into the hallway. Most are the children of Poles, and can speak the language fluently. But as soon as they cross the threshold they slip into English, inflected with the mild Cockney accent of Hertfordshire. It happens a lot, says the headteacher, Iwona Pniewska.

Similar scenes occur across the country. In 2004 Britain opened its labour market to citizens of the Baltic and eastern European countries that had just joined the EU. Many young adults came, especially from Lithuania and Poland—and, a few years later, from Bulgaria and Romania. They soon settled down and had children. In 2008 one in 27 babies born in England and Wales had a mother from one of the new EU countries; last year the proportion was one in 14. Others have grown up in Britain after arriving as young children. Some are British citizens; some have been granted settled status since Britain left the EU. All are now folding themselves, more or less easily, into British society.

The Economist has interviewed more than a dozen children of eastern European immigrants, from age 13 to 20. Because most are children, we have kept all of them anonymous. They are geographically spread, from south-west England to Scotland. They display a mixture of optimism and confusion about Britain and their place in it. The same is true of many immigrants' children—but in some ways the children of eastern Europeans are unusual.

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All seem to understand that their parents moved to Britain because they saw few opportunities in eastern Europe. As one young woman, who was born in Bulgaria, puts it: "We belonged to a class where, no matter what you do, you end up in the same place." Migration brought little improvement at first. Their parents frequently worked desultory jobs in warehouses and cafés, and as cleaners. One girl remembers seeing a picture of her parents crammed into a house in London with other Poles.

Their parents' progress since then has been rapid, but somewhat uneven. Several say that their mothers' working lives have changed more dramatically than their fathers'. One child of Polish immigrants says that her father works the night shift as a delivery driver, as he has done for years. By contrast, her mother began by working as a cashier and a waitress and is now an architect. Another says that her mother worked for several years as a cleaner; she is now an estate agent.

Many eastern European men landed well-paid manual work in Britain, often in the construction industry. Women, by contrast, had to learn English and retrain. The upshot is a unique employment pattern. The latest Labour Force Survey, covering July to September 2022, shows that women who were born in eastern Europe are more ▸▸

likely to hold managerial or professional jobs than men born in eastern Europe. The opposite is true of workers born in Britain, western Europe, Africa or Asia.

Their parents' climb from the very lowest rungs of the employment ladder may have shaped the teenagers' views of the world. In a generally glum country, they are strikingly optimistic about their economic prospects. "One hundred per cent", replies a young man, when asked about the chance that he will be able to live a more comfortable life than his parents. Three girls answer the same question so quickly that it seems unlikely the possibility of faring worse than their parents has even entered their minds.

Because their parents moved anywhere that jobs could be found, the teenage children of eastern Europeans have grown up dispersed. The 2021 census shows that 612,000 people in England and Wales mostly speak Polish, making them three times as numerous as Bengali-speakers (who are mostly Bangladeshi) or Gujarati-speakers (who are Indian but may have arrived from east Africa). Yet the most Polish-speaking place in England is Boston, a town where only 6% of people speak the language. By contrast, 11% of people in the London borough of Tower Hamlets speak Bengali and 13% of people in Leicester speak Gujarati.

They tend to go to schools without many people from the same background. And they frequently ignore the others anyway. "I do have Polish people in my form, but I'm not friends with them," explains one child of Polish immigrants. A 19-year-old man who was born in Lithuania describes his school in London as a wash of cultures, in which he knew as many Pakistanis as Lithuanians. He was untroubled by that. "I never thought: 'I need to know Lithuanians'," he says.

Not all of their parents are so sanguine. Many send their children to Saturday schools to make friends and learn about the homeland in a (theoretically) monolingual environment. Other parents find churches or outfits such as Karma Leicester, a Polish football team that runs a youth academy. "They don't want us to forget our roots and stuff," says a girl in the Welwyn Garden City school, with a barely detectable eye-roll.

There is indeed some danger of that. Even those who are fluent in their parents' first language say that they tend to think in English and then translate their thoughts. And not all are perfectly fluent. In one family the older sister speaks excellent Lithuanian but the younger does not, because her sister often speaks English with her. As they grow older, roots can wither. "It sounds bad to say, but sometimes I forget that I'm Polish," says a 20-year-old who arrived in Britain as a young child.

A few have mulled moving to the country where their parents were born. But those teenagers seem to be motivated by little more than pleasant memories of annual trips to visit their grandparents, and they have no real plans. By contrast, those who have decided against moving are firmly committed to Britain. "I'm getting worse and worse at Polish, so I don't think I'll be doing that," says a boy, flatly.

Their identities are fluctuating and complicated. "I consider myself Lithuanian", says one girl, who goes on to explain that she considers England her home country. Her identity seems to be a way of expressing closeness to her family rather than national allegiance. "I don't feel entirely British," says the Lithuanian 19-year-old from London. "But I don't feel entirely Lithuanian either."

Unlike America, Britain does not offer hyphenated identities off the peg. You cannot be Polish-British as easily as you can be Italian-American (although you can be a British Indian, because "Indian" is a widely acknowledged ethnic group). As a result, members of the new generation of eastern-European-descended Britons must use labels that do not capture the way they feel, and sometimes make them feel like they belong nowhere. That is regrettable. But perhaps they will be able to bend the language in time. They are a confident bunch, and they have the numbers. ■

Festivity and finance

Scrooge-onomics

The inefficiencies of Christmas

'TIS THE season to be jolly—and to feign delight at disappointing Christmas presents. The average British adult splurged around £550 ($667) on gifts in 2021, according to one survey. But a back-of-the-envelope calculation by Ian Stewart of Deloitte, a consultancy, suggests that the volumes of unwanted stuff in effect destroyed around £3bn of the £25bn value. Though many see Christmas as a time of generosity and cheer, others see waste. A small number study its inefficiencies.

In 1993 Joel Waldfogel of the University of Minnesota identified a "deadweight loss" when he studied the difference between the cost of seasonal gifts and how much their recipients valued them after they had accounted for exchanges and put sentimental value aside. Today he says that on average cash spent on another person yields around 85% of the benefit of cash they spend on themselves. Although gift-giving may make some people happy, it's "a lousy way to allocate resources," he says.

There are ways to reduce Christmas losses. One is the use of gift cards, which give recipients some choice. But Britons don't seem to like them much. A survey of adults from Ipsos, a pollster, found that 43% of Americans, 40% of the French and



Festively misallocating resources

only 29% of Britons were planning to give them for Christmas 2022. Making it easier to return unwanted gifts should help. Al Gerrie, chief executive officer of ZigZag, a returns platform, says that when a gift message or gift wrap is used in fashion retail (that is, for a present) return rates tend to be considerably higher.

As e-commerce has expanded, so too have ways of sending stuff back. But returns are a headache for retailers. On average it costs between £5 and £10 to put a product back on the shelves, says Mr Gerrie, thanks to the shipping, inspecting and repackaging required. (In January, Father Christmas's elves must conduct "sniff tests" to see if a garment has been worn.) Increasingly, retailers are charging shoppers to return goods. ZigZag's data suggest the number of paid-for returns has more than doubled since last year, while the number of free returns has fallen. That, though, may mean more consumers are stuck with unwanted gifts.

Another Christmas inefficiency for retailers is the fact that it comes but once a year. Gary Grant of The Entertainer, which sells toys, jokes that he would love it if festive sales were spread throughout the year rather than being crammed into the final quarter. He is understaffed, he says, during the holiday season, when he expands his workforce by 50%, and then overstaffed the rest of the year. Shipping companies, warehouse operators and sorting centres must also organise themselves to meet peak demand; that can mean unused capacity at quieter times of the year. Data from Metapack, a logistics software company, suggest that in December the volume of posted parcels is more than double the level in September.

Over time, it does seem that consumers are spreading their spending a little more thinly across the year. In 1986 25% of the year's spending on clothing was in November and December. In 2019 the share was 22%. Seasonality in retail spending, which includes restaurants, is also falling. Seasonal employment as a share of the total between October and December has been decreasing since 1997, according to the Office for National Statistics. A new study by Mr Waldfogel found that since 2000 growth in the American economy has been associated with a smaller seasonal bump in December's retail sales.

While some dream of white Christmases, others may yearn for mandatory exchanges of cash, or even a mechanism to randomly allocate the celebrations evenly across months of the year. Much would be lost if such a system were adopted, not least the joy that can accompany the exchange of carefully (if badly) chosen presents. But creating a fresh batch of unintended consequences for economists to analyse might yield some happy returns. ■

The NHS

Nursing a grievance

The first strikes in the Royal College of Nursing's 106-year history

Only the River Thames separates St Thomas's hospital in London from the Houses of Parliament. Yet for the nurses who picketed outside the hospital, it might have been an ocean. On December 15th around 100,000 nurses across England, Northern Ireland and Wales went on strike for 12 hours. Another strike in England and Wales took place on December 20th. Pat Cullen, the general secretary of the Royal College of Nursing (RCN), has warned that the walkouts—the first in the organisation's 106-year history—may continue into January and beyond.

The RCN's chief demand is more money. It has asked for a pay rise of 5% above inflation as measured by the retail price index (RPI). Given that RPI inflation is 14%, that seems a tough ask. The average basic salary for a full-time nurse in England is around £36,000 ($45,000). Comparisons with the pay of other British workers is tricky because the range is wide. Yet nurses point out that their pay fell by 6% in real terms in the decade to 2021, compared with a 3% fall for private-sector workers. Their pay also lags behind that of nurses in most other rich countries. Ms Cullen has said the RCN's demand is a "starting point".

The government has said it will not budge. In 2022 it followed the recommendation of a pay-review body in offering most nurses a rise of 4-5%. It has said more money would have to cover other NHS staff (apart from doctors, dentists and senior managers) and come out of front-line NHS services. Yet on December 15th a former head of the pay-review body acknowledged that its recommendation would probably have been more generous had it come later in the year, taking higher inflation into account. In Scotland, where, as in Northern Ireland and Wales, health is devolved, the government pre-empted strikes by offering a pay rise of 7%. To fund this and other NHS costs, it is raising the higher and top rates of income tax by 1%.



A burning sense of injustice

Yet the strikes are about more than money. "Pay is the lightning rod, it's attracting all the energy," says Jim Buchan of the Health Foundation, a research charity. But it "cannot be disentangled" from working conditions. During the covid-19 pandemic, many nurses left the NHS. Figures published by the NHS in September revealed a shortage of 47,496 nurses, meaning nearly 12% of jobs are unfilled. Those left must work harder, as they tackle an NHS waiting list that has ballooned to 7.2m from 4.6m in early 2020.

Such pressures are felt throughout the NHS. Some 10,000 ambulance workers in England and Wales, and midwives in Wales, are planning industrial action. Junior doctors may follow. Their union plans to hold a ballot in early January.

NHS employees say that it is patients who pay the price for poor working conditions. In a recent RCN survey, only 18% of nurses said that they had enough time to provide the quality of care they liked. "We're so short-staffed, I cry for my patients," says Kafelat Adekunle, a community matron. Ambulance delays are at record highs. "People are only interested now, because as an absolute last resort, the ambulance workers have said we're not carrying on any more," says Paul Turner, a paramedic with the North West Ambulance service.

On December 15th a survey by YouGov, a pollster, found that almost two-thirds of Britons supported the nurses' strikes. Near St Thomas's picket lines, cars crossing Westminster Bridge honked their horns in support. Yet if the walkouts are seen to harm patients, the goodwill may vanish. Nurses in acute services, such as chemotherapy, paediatric intensive care and high-risk mental-health services, are scheduled to work throughout the walkouts. In other departments, staffing levels are reduced roughly to those typical for night-time and on Christmas Day. Ambulance workers have said they will respond to life-threatening cases, though it is not always obvious which those are.

No amount of planning can prevent the anguish and inconvenience caused by cancelled procedures. They affect nurses too. "My operation was cancelled today," says Ms Adekunle, the matron. "But I don't mind. We're fighting for everyone." ■

Bagehot | Westminster's other cathedral

A religious constitution fits a godless country surprisingly well



"ONCE IN ROYAL David's city, stood a lowly cattle shed." The soloist's voice sliced through the Chapel of St Mary Undercroft, a small church in a corner of the Palace of Westminster, before a congregation of MPs, lords, cabinet ministers, aides, IT support staff and your correspondent.

Amid the singing, a woman marched down the aisle with a green piece of paper marked "VOTE". Sacred matters had to wait; profane politics called. There was a division over whether to carry out an impact assessment on the effect a free trade deal with Australia and New Zealand would have on Britain's farmers. "And our eyes at last shall see Him," bayed the assembled singers as MPs gathered their winter coats and rushed to the voting lobbies.

Religion is entwined with Britain's Parliament. The House of Commons begins its day with prayers. Since attendance at prayers is the way to guarantee a seat for the day, even the godless turn up. Britain has a religious constitution, with church and state fused, rather than separated. The king is head of the Church of England; Catholics may not ascend the throne. Head to the House of Lords, Britain's upper chamber, to find 26 Bishops from the Church of England debating everything from welfare to defence policy. At times, Parliament—filled with cloisters, saints and stained glass windows—is as much a cathedral as a place of politics.

Devotion in Westminster is not matched by the country at large. For the first time, only a minority of people identify as Christian in some form, according to the 2021 census. In 2001, 72% did. Now only 46% do. Weekly church attendance is now under 1m in a country of 67m. Meanwhile, the ranks of the godless grow. In 2011, a quarter of people expressed no religion. Now 37% do. A religious constitution suits a godless country surprisingly well.

A gap between politicians and voters on religion has always existed. Before the second world war, British prime ministers tended towards scepticism even when Britain was still relatively devout, points out Mark Vickers, in his new book "God in Number 10". Clement Attlee, the post-war Labour leader, declared: "Believe in the ethics of Christianity. Can't believe the mumbo jumbo." Organised religion was associated with joyless Sundays, which was anathema to the ambitious and often hedonistic men who ran Britain in the first half of the 20th century. David Lloyd George, the Liberal prime minister, said that "the thought of Heaven used to frighten me more than the thought of Hell".

Now, the opposite applies. It is the norm for leading politicians to be people of faith, even if their voters are not. Rishi Sunak, the prime minister, is a Hindu and keeps a statue of Lord Ganesh, the elephant-headed God, on his desk in Downing Street. Among the great offices of state, only James Cleverly, the foreign secretary, is not particularly religious. Even Boris Johnson, once labelled a pagan by one admirer, called himself a "very, very bad Christian". Sir Keir Starmer would be the first avowedly atheist leader of Britain since Jim Callaghan, the Labour prime minister who led the country five decades ago. (Mr Johnson, the very bad Christian, chided Sir Keir with scripture: "'The foolish man has said in his heart, there is no God.' I'll leave it at that.")

Sociological rather than ecclesiastical reasons explain Britain's surplus of godly MPs. Parliamentarians are joiners by nature. Turning up to church every Sunday and sitting alongside people one may not particularly like is good training for a career in politics. Geography plays its part. A country's capital cannot help but shape a country's politics. Despite its reputation as a hotbed of metropolitan liberalism, London is the most devout place in the country. One in four attends a religious service in the city each month, compared with one in ten outside the capital.

Political calculation rather than constitutional limit stops faith from playing too large a role in British politics. There are few votes to be gained by scooping up a devout minority. (Likewise, there are few to be gained by railing against the role of religion in public life.) Mr Sunak plays down the fact he is the first non-Christian leader of the country. "It's also wonderful that it's not that big a deal," he told the *Spectator*. Most voters do not care either way, as long as religion does not intrude into day-to-day politics. When it does, the results are rarely good. Tim Farron, a former leader of the Liberal Democrats and a devout Christian, spent much of the 2017 general election being grilled on whether he thought homosexuality was a sin.

We do do God

Since the state does not separate religion and politics, MPs are left to do it themselves. Jeremy Hunt, the chancellor, has expressed unease over abortion after 12 weeks. During his pitch for leader in 2019, he said he would not touch the limit of 24 weeks. "I don't think it defines my politics," he said of his faith. A sense of restraint is necessary for all parts of the constitution to work and faith is no exception.

Britain's settlement on religion and politics may look ridiculous. But a secular constitution is no guarantee against neuralgic debates on faith. America divides church and state, yet religion infects politics. A narrative of exclusion is a potent thing, which evangelical Republicans have whipped up for decades, with great success. In Britain, religion permeates the constitution and daily life of politics to such an absurd degree it is hardly there at all. And so theocracy in theory becomes secular democracy in practice.

Instead, religion in British politics is like nitrogen in air: inert and ignored but there nevertheless. The devout can tell themselves that Britain is still a Christian country; the secular can console themselves that this has no effect. In the Chapel of St Mary Undercroft, lawmakers crept back in after the motion was defeated (Ayes 192, Noes 296) to belt out more carols and hear a sermon. Keep religion in Parliament. It is the best way of keeping religion out of politics. ■



The energy transition

When brown meets green

ABU DHABI

Why the Gulf's oil powers are betting big on clean energy

The United Arab Emirates sits on a rich fossil bounty. ADNOC, the national oil company, is one of the world's top hydrocarbon producers. Two months ago the UAE hosted some 140,000 delegates at the planet's largest oil-and-gas jamboree. Against the backdrop of the worst energy crisis in decades, you might have expected much gloating about how the Persian Gulf's carbon-spewing exports helped avert a bigger shock. That made the keynote address by Sultan Al Jaber, the UAE's minister of industry, all the more remarkable. Mr Al Jaber repeatedly highlighted the importance of greening this brownest of industries. "ADNOC is making today's energy cleaner while investing in the clean energies of tomorrow," he intoned.

In the past the grandees of the Gulf's energy industry limited themselves to defending fossil fuels. Now many, like Mr Al Jaber, profess a commitment to decarbonisation. Saudi Arabia and Kuwait have announced targets of net-zero emissions of greenhouse gases by 2060. The UAE and Oman say they will get there by 2050. Qatar has no net-zero target, but says it will cut emissions by a quarter by 2030 relative to a scenario that assumes business as usual. All the Gulf countries have signed the Global Methane Pledge, which commits them to reduce emissions of that potent greenhouse gas. The UAE will even host the annual UN climate summit in 2023.

Some suspect this is greenwash: all soothing noises and toothless targets after years of denying climate science and obstructing efforts to tackle global warming. On this view, the Gulf's governments are too reliant on the revenues generated by the national energy firms—which account for a big share of state budgets (see chart 1 on next page)—to be serious about decarbonisation. Yet an examination of the leading companies' investment plans reveals a genuine—and in some cases rather large—bet on green technologies.

This is worth scrutinising, because the firms behind the effort matter beyond their region. National energy companies in other parts of the world look to the Gulf behemoths, and especially to ADNOC and Saudi Aramco, the Arab kingdom's oil colossus, as examples to emulate. Where two of the world's biggest energy firms go technologically and strategically, their state-run peers elsewhere often follow.

The Gulf oil champions' approach rests on two pillars. The first is deep brown: it involves doubling down on oil and gas. Bolstered by high crude prices, the region's energy firms are investing heavily to expand output. Aramco's capital expenditure in 2022 will come to $40bn-50bn. It is promising even bigger sums in the next few years, as it aims to lift its oil-production capacity from roughly 12m barrels per day (b/d) to 13m by 2027. ADNOC will spend $150bn on capital projects by 2027 with the goal of boosting capacity from roughly 4m to 5m b/d. Qatar Energy will plough $80bn between 2021 and 2025 into expanding production of liquefied natural gas (LNG) by two-thirds by 2027.

For most energy firms, doubling down on fossil fuels during the transition to a ▸▸

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carbon-constrained world would be financial folly. Every national oil company in the world "wants to be the last one standing", observes Patrick Heller of the Natural Resource Governance Institute, an American NGO. Naturally, "not all of them can be." The Gulf giants, with their vast, low-cost reserves, are the likeliest to prevail. As such, their huge investments in new production could pay off, Mr Heller thinks, "even if global demand declines dramatically in the years to come".

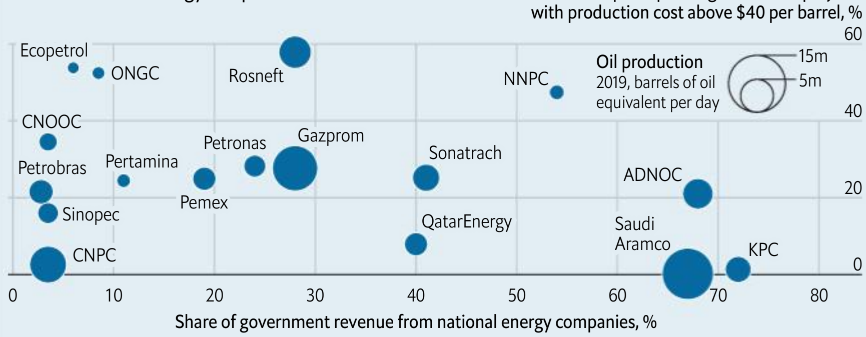
Oilmen betting on oil is nothing new. But the Gulf giants' latest wagers suggest they no longer have their heads in the sand about the future of oil demand. They are keenly aware that their best customers in the developed world are going to crack down on carbon emissions, argues Mariam Al-Shamma of S&P Global, a research firm. Policies like the EU's carbon border tax, the details of which member states approved on December 18th, are a sign of things to come. "To be the last producer standing, you need more than just the lowest cost," Ms Al-Shamma says. To ensure their longevity, the Gulf's oil champions also intend to be the cleanest producers of fossil fuels.

They enjoy a natural advantage. Their hydrocarbon reserves are among the least carbon-intensive to extract (see chart 2). The Emiratis and the Saudis have also made an effort to reduce this carbon intensity further with high operational efficiency and low gas flaring, notes Olga Savenkova of Rystad Energy, a research firm. ADNOC is spending $3.6bn on subsea power cables and other kit to replace natural gas burned at its offshore facilities with clean energy from onshore. This is both green and, potentially, good business. Ms Al-Shamma reckons that grades of crude made with fewer emissions will fetch a premium, a trend already seen in the LNG market.

The second pillar of the Gulf's strategy is more intriguing. It involves investing part of today's fossil windfall in the clean-energy technologies of tomorrow. The region's governments are making some of the world's biggest bets on carbon capture and storage, renewables and hydrogen. "A wave of low-carbon projects is building in the Middle East," marvels one analyst.

The gulf between them 1

Selected national energy companies, 2021 or latest



Sources: Natural Resource Governance Institute; International Institute for Sustainable Development

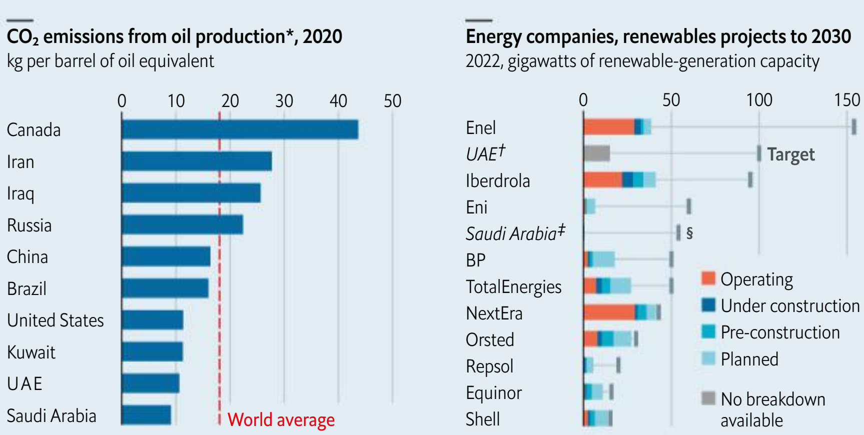
"Saudi Arabia holds major advantages in decarbonisation," says Jim Krane of Rice University in Texas. He points to vast tracts of empty, sunny land with a geology tailor-made for storing carbon emitted in adjacent industrial areas. Aramco plans to develop capacity to capture, store and utilise 11m tonnes of carbon dioxide a year, and to install 12 gigawatts (GW) of wind and solar power by 2035.

Overall, Saudi Arabia aims to build 54GW of renewable capacity by 2032. Not to be outdone, the UAE is eyeing 100GW of renewable-energy capacity by 2030, at home and abroad, up from a cumulative investment in 15GW-worth in 2021. That would make Masdar, a state-controlled clean-energy outfit in which ADNOC has a stake, the world's second-biggest developer of clean energy. It recently bought a British firm developing energy-storage technology.

The Gulf's biggest green bets concern hydrogen. If it is made using renewables as opposed to natural gas, hydrogen is a clean fuel. Investments in the needed infrastructure are proliferating the world over, from Gujarat to Texas. In 2021 the UAE inaugurated its region's first such "green hydrogen" plant. ACWA Power, a Saudi utility, has almost completed financing for a $5bn green-hydrogen project. Oman, whose oil reserves are smaller and costlier to exploit than those of its bigger neighbours, is talking of a $30bn investment in what could be the world's largest hydrogen plant. It has launched a state-owned hydrogen entity to offer green-hydrogen projects concessions in its special economic zones.

The Saudis and Emiratis are also looking abroad. Masdar is investing in a $10bn hydrogen venture in Egypt; developing 4GW of green-hydrogen and renewables projects in Azerbaijan; and has invested in a firm working on green hydrogen in northern England. ACWA Power is eyeing multibillion-dollar green-hydrogen projects in Egypt, South Africa and Thailand. By 2030 both the UAE and Saudi Arabia want to control a quarter or more of the global export market for clean hydrogen.

Arabian lights 2



Sources: Rystad Energy; International Renewable Energy Agency; Masdar

*And associated liquids †2021. Includes ADNOC, Masdar, Mubadala and TAQA ‡Includes targets for Saudi Aramco and other Saudi energy companies §2032 target

Ben Cahill of the Centre for Strategic and International Studies, a think-tank, sees the two countries moving aggressively on hydrogen and ammonia (which can serve as a less fiddly medium to transport the gas). They want to acquire first-mover advantage by securing deals with buyers from Asia and Europe. Qatar is spending more than $1bn on a plant to make "blue ammonia" from natural gas. It is scheduled to open in 2026. If the hydrogen economy takes off, estimates Roland Berger, a consultancy, it could produce between $120bn and $200bn in annual revenues for Gulf countries by 2050. That is far less than they now make from oil and gas; Aramco alone had sales of more than $300bn in the first half of 2022. But it is serious money—and, given the real risk of an end to the oil bonanza, suggests that the Gulf's green efforts ought to be taken seriously. ■

Air travel

Parting of the clouds

Flying is heading to pre-covid heights

THE AVIATION industry is a useful altimeter for the lingering impact of covid-19. Air travel ground almost to a halt in 2020, as virus-induced restrictions kept people at home. Since then it has clawed its way upwards as lockdowns have eased and travellers who had been denied holidays, visits to loved ones and business trips have gradually returned to the air. Capacity, measured by available seats, is set to end 2022 at around 4.7bn, according to OAG, a consultancy. Although that remains down by 12% on 2019, before the pandemic struck, it is nearly a third higher than at the end of last year.

Flying is not likely to hit pre-covid levels until 2024. Nevertheless, carriers' confidence in the victory over the virus, and in the unshaken yearning for travel of the growing global middle-class, is evident in their longer-term plans. America's United Airlines has recently placed a big order for new aircraft. Air India, a poorly run flag carrier acquired in early 2022 by Tata Group, a rather better-run conglomerate with a turnaround plan, is rumoured to be close to ordering 500 planes from Europe's Airbus and its American planemaking arch-rival, Boeing. Healthy demand for passenger jets means that both aerospace giants are planning to increase production in 2023, and get back to pre-pandemic levels within a couple of years.

Aircraft sales will get an extra boost from deep-pocketed newcomers. As part of its attempts to diversify its economy away from oil, Saudi Arabia is poised to launch a new national airline, RIA, to compete with incumbent Gulf carriers: Emirates, Etihad and Qatar Airways. The kingdom hopes to raise $100bn, including from its sovereign-wealth fund, for aviation. It is planning to build one of the world's biggest airports, in Jeddah, to serve 120m domestic and connecting passengers by 2030.

For such grand schemes to work, international travel must rebound in Asia. There, too, the news is encouraging. The recent loosening of covid restrictions in China, the region's dominant aviation market, led to a 30% jump in domestic capacity in a matter of days. International flights to and from China are stuck at less than 5% of levels from 2019, so 2023 won't break records. But if Chinese are allowed to restart foreign travel, 2024 could be the most profitable year yet for China's airlines, reckons John Grant of OAG.

American and European carriers, responsible for the bulk of the industry's profits in recent years, may get there sooner. They have exploited passengers' rush to get back in the air and used canny management of capacity to keep ticket prices high. Some are already making money again. After three awful years, when airlines worldwide suffered a combined cumulative net loss of $187bn, the winners will propel the global industry to a profit of $4.7bn in 2023, forecasts IATA, a trade body.

As for the (more numerous) lossmakers, high fuel prices, looming recession and $220bn in additional industry debt accumulated during the pandemic may force some of them into bankruptcy—or, for a lucky few, consolidation. ITA, the successor to Alitalia, Italy's perennially disappointing flag carrier, could be snapped up by Germany's Lufthansa; IAG group, parent of British Airways and Iberia, may bring Portugal's TAP into its fold. Better that than permanent flightlessness. ■



Now boarding

Sino-American business

A thaw, and lots of frost

HONG KONG

America tries to nobble China's tech industry. Again

FOR YEARS regulators in Washington have been trying to gain access to the books of Chinese companies listed in America, to ensure they are in good order. Their counterparts in Beijing have refused, invoking vague national-security considerations. This summer it seemed as though Chinese firms with nearly $1trn-worth of shares traded in America would be forced to delist from American bourses as a result of the stalemate. On December 15th America's auditing regulator announced a breakthrough: its team has been allowed to conduct inspections in Hong Kong.

The beancounters' success belies a bilateral commercial relationship that is getting increasingly tetchy. On the day of their announcement, America's Commerce Department said it had added 36 Chinese companies to its "entity list", a designation that makes doing business with them near-impossible. The previous day a bipartisan group of lawmakers in Congress proposed a ban on TikTok, a Chinese-linked social-media platform with 100m American users. The day before that, Democratic and Republican senators introduced a bill that, if passed, would add Huawei and other Chinese telecoms companies to another list, maintained by the Treasury, of "specially designated nationals". This would deny them access to American banks, in effect freezing them out of the global financial system.

The American government has been ratcheting up pressure on Chinese business since 2019, when Donald Trump first blacklisted Huawei. His successor, Joe Biden, is even less coy that the policies' ultimate goal is to hobble a geostrategic rival. In October Mr Biden's administration announced sweeping measures that block Chinese artificial-intelligence (AI) ventures from gaining access to American technology and talent. Among the latest additions to the Commerce Department's entity list is YMTC, China's most advanced memory-chip maker.

In order to do business with blacklisted companies, American firms need express permission from the federal government, which is difficult to obtain. Because the restrictions apply to any American technology, even non-American businesses whose products are partly derived from it are caught up. This month the *Financial Times* reported that Arm, a British chip-design firm, has stopped supplying its most ad- ▸▸

vanced blueprints to Alibaba, China's e-commerce giant. The halt came after Arm decided it would be unable to obtain licences for those exports.

Recent media reports suggest that Japan and the Netherlands may join America in applying sanctions. Japan is the second-biggest seller of semiconductor equipment to China behind America. By signing up to Washington's sanctions it closes a "major loophole" in the current restrictions, according to Jefferies, an investment bank. Analysts wonder if ASML, the Dutch monopolist in the market for chip-etching machines, will keep selling equipment to China. A halt in sales of ASML's deep-ultraviolet lithography devices would devastate China's semiconductor industry, since no alternative supplier exists. Foxconn, the Taiwanese firm that assembles iPhones, said on December 15th that it would sell its small stake in Tsinghua Unigroup, a Chinese chipmaker with state links. Taiwan's government had pressed it to do so.

To avoid Uncle Sam's cudgel, some Chinese firms are trying to distance themselves from their country of origin. TikTok has moved its headquarters to Singapore and downplays its links to ByteDance, its Chinese parent company. But severing those links is hard: engineers working on TikTok algorithms are still being hired in China, according to the *Wall Street Journal*. A few American states are seeking to ban the app from government-issued phones. Some have filed lawsuits alleging that TikTok makes sensitive data accessible to the Chinese government (which TikTok denies). The beancounters may be getting along. But make no mistake: technological decoupling between the world's two biggest economies is proceeding apace. ■

Bartleby Making the most of LinkedIn



How to survive and thrive on the business world's favourite social network

SOCIAL MEDIA and career development typically don't mix. Doom-scrolling Elon Musk's tweets or getting sucked into the latest TikTok craze do not exactly enhance your work prospects. Unless, that is, the social network in question is LinkedIn. Founded in 2003 in Silicon Valley as a platform for professional networking, and purchased in 2016 by Microsoft for $26bn, it has become a fixture of corporate cyberspace, with more than 800m registered users worldwide. Its 171m American members outnumber the country's labour force. High-school students are creating profiles to include with their college applications. The chances are you probably have one, too. How do you make the most of it?

For those who have yet to link up with LinkedIn, the first, critical, step is fashioning your profile. First, choose a slick photo: think visionary resolve meets empathetic authenticity. Next, list your educational and professional history. Remember, nothing is too trivial. Went to a selective kindergarten? Say so; it illustrates that you were a winner from a tender age. As you draw up your list, make sure that it reads in the most deadpan way possible: no adjectives, no personal touch. The mechanical and the matter-of-fact is at a premium.

Armed with your profile, you can get down to business and begin creating your network. You need to have 500 or more connections in your profile to be taken seriously. To achieve this, you need to step out of your comfort zone and accost complete strangers. Do not treat it as you would inviting classmates you do not know to your birthday party, which in real life makes you look desperate. On LinkedIn, cringeworthy is not part of the lexicon. Your columnist, a guest Bartleby, has amassed 6,315 connections, of whom she actually knows maybe 300.

Remember that cousin Dimitris your mother always mentions on the phone, who works at Bain Capital in Boston? What better way than an innocuous LinkedIn invite to reconnect—and get a toehold in his private-equity network. And that man who sat next to you on the red-eye back from Chicago? Even if you recall only his first name and the company he works at, LinkedIn's algorithm should be able to let you track him down with relative ease.

If you are an analyst at Goldman Sachs, connect with every analyst in JPMorgan Chase, Morgan Stanley and UBS. Don't worry, they are thinking the same thing, so are likely to oblige. While you are at it, you might as well approach everyone with a pulse at Goldman, too. If a higher-up—best of all, the CEO— happens to accept, you have struck gold. The boss's existing connections will treat you as more of an equal; those desperate to get one degree of separation closer to the top dog will come begging. Your network will explode.

Next, flaunt your every success. LinkedIn is to white-collar workers what Instagram is to fashionistas: a way to present the most envy-provoking version of yourself. "Deeply honoured to have been ranked in the Global Elite category of Thought Leaders by [insert name of obscure organisation which hands out random titles]."



If you want everyone to know that you were a speaker at the Bloomberg Global Regulatory Forum, attach photos of yourself on the podium—and own it. Posting is, in essence, showing off, so any attempt to mitigate invariably comes across as humble-bragging ("I was told by colleagues I should be sharing my successes. So I am proud to announce that I was invited to participate in the Innovation Leaders panel."). Bartleby posts only her columns (such as this one) with zero commentary.

While you are feeding the app your achievements, do not pay too much attention to those of others—that will allow you to appear poised and unflappable, not envious. Ignore automatically generated prompts like "Congratulate Dimitris on starting a new position as co-head of European Private Equity at KKR". These are designed, as if by your mother, to rub it in your face and motivate you to be more ambitious (come to think of it, she did mention your cousin had moved to London).

You need to play it cool so disregard all automatic prompts such as "Take a moment to recognise one year of being connected to your co-worker". That time is better spent forging fresh connections to rack up the numbers—which, in the gratification-seeking, gamified world of social-networking, is ultimately a big part of what LinkedIn is all about. According to the latest notification, "You appeared in 178 searches this week." So you must be doing something right.

Schumpeter | The sovereign of savoir-faire

Bernard Arnault is a model European capitalist—but with American characteristics



A STORY BERNARD ARNAULT likes to tell is of a meeting with Steve Jobs, the late co-founder of Apple and father of the iPhone. Jobs was on the verge of launching the Apple Store. Mr Arnault, a Frenchman whose company, LVMH, provides high society with its Louis Vuitton luggage, Christian Dior couture, Tiffany jewellery and Dom Pérignon champagne, knows more than most about turning storefronts into temples of desire. As they talked, the conversation turned to their products. Mr Arnault asked Jobs whether he thought the iPhone would still be around in 30 years' time. The American replied that he did not know. Jobs then asked the same question about Dom Pérignon, whose first vintage was in 1921. Mr Arnault, the story goes, assured him it would still be drunk for generations to come. Jobs agreed.

In many ways Mr Arnault, the first European to rise to the top of the world's rich lists, is the epitome of how to do business in the old continent. As his remarks to Jobs suggested, he thinks about the distant past and decades into the future, not just about next year's profits. He relishes craftsmanship, championing outré designers, perfumers and cellar masters, while often reserving for himself the last word on product details. His own presence as a business titan is understated. Unlike Elon Musk, Jeff Bezos and Bill Gates, his most recent predecessors as the world's richest people, he is not a household name—unless the household is a *maison de couture*, or palatial. He is a regular on the Parisian fashion-show circuit, yet lets the clothes and those that wear them grab the spotlight. He is soft-spoken but is no soft touch. As a writer on this newspaper put it back in 1989, he has "a charming smile but teeth, apparently, of steel". That reputation, which goes well with his lupine looks, is one he has never seemed to mind.

Mr Arnault has been high on the rich list for more than 15 years. Some might think that his rise to the top this month, with a net worth, according to *Forbes*, of $180bn, is a cyclical fluke, the result of American technology stocks falling out of vogue, Mr Musk immolating his fortune, and analogue stuff—when untouched by the cost-of-living crisis—having a moment of glory. Yet however different the 73-year-old Mr Arnault is from a tech mogul, he, too, has remade the world of business. In the words of Luca Solca of Bernstein, an investment firm, he has invented a paradox: "selling exclusivity by the million". To achieve that, he has brought American-style business tactics to one of the most traditional of industries and equipped it for a global, premiumised, Instagrammable world. It is an approach others should emulate.

His indoctrination into swashbuckling capitalism came in New York in the early 1980s, where he fled from French socialism. Little is known about his time there, but when he returned to France in 1984, he was quick to deploy the barbarian tactics emerging on Wall Street. First came the leveraged buy-out. He spotted a down-at-heel Christian Dior buried within a struggling textile conglomerate. He sold the dross and polished up Dior, the 38-year-old crown jewel. Then he went hostile, targeting Moët Hennessy-Louis Vuitton in the late 1980s, and ultimately ripping it away from the old money behind it. He was not always successful. Gucci, the Italian fashion house, continues to elude him. But his modus operandi is consistent. Make crafty use of the balance-sheet to buy musty fashion houses and turn them into mega-brands. LVMH, worth almost €350bn ($372bn), now has 75 *maisons*.

He is more than just a dealmaker. He is a master of hype, recruiting eye-catching designers, many from outside France, to shake up the fashion establishment. Their shock value is not just confined to the catwalk. It provides publicity for high-margin fashion accessories, such as perfumes and handbags, that are LVMH's more mainstream bread and butter. Moreover, he imposes a machine-like efficiency on the group, modernising production processes, mainly selling through LVMH's own stores rather than licensees, and recruiting the best in the business.

His discipline extends to profits. Though he has his eye on long-term brand equity, quarterly results rarely miss a beat. Louis Vuitton is the flagship. Mr Solca estimates it generates €20bn in sales (about a third of LVMH's revenues in 2021), with operating margins close to 50%. Gucci pales in comparison. The cashflow enables him to outspend rivals on the fanciest stores and the splashiest marketing campaigns. An advertisement in the run-up to the World Cup, shot by Annie Leibovitz, showing footballers Lionel Messi and Cristiano Ronaldo playing chess on a Vuitton briefcase, is a case in point (even if Kylian Mbappé, the French striker, would have been a more inspired choice than Ronaldo).

Pitchforks and silver spoons

LVMH has vulnerabilities. Mr Arnault was early to spot the promise of globalisation, first identifying the Japanese taste for luxury, and then the Chinese one. Asia, which had more than 2,200 LVMH stores in 2021, is by far its biggest source of revenue. However, Russia's invasion of Ukraine has highlighted geopolitical threats. If the firm had to pull out of China, it would be a disaster. Moreover, premiumisation has accompanied the rise of social inequality around the world. While people believe they can emulate the rich, that is good for business. But if they feel they will never be able to join the monogrammed elite, frustrations may rise.

Yet Mr Arnault's European heritage gives him an extra edge in the wealth stakes. He has an old-world faith in bloodlines. Unlike Mr Musk, who has squandered some of his Tesla stock on Twitter, Mr Bezos, who surrendered part of Amazon to his ex-wife, and Mr Gates, who has sold most of his Microsoft shares, his number-one priority is to retain control of LVMH, in which his family holds an unassailable 48% stake. His five children all work in the business—albeit in what Mr Solca calls a "Darwinian contest" to succeed him when he eventually retires. No one knows better than the lord of luxury the value of keeping hold of the family silver. ■



Top of the charts

Time for a party

IBIZA

Which countries were 2022's economic winners?

IN FINANCIAL TERMS the past year has been bad for almost everyone. Inflation of 10% year-on-year across the rich world has slashed household incomes. Investors have lost out as global stockmarkets have plunged by 20%. Yet this poor aggregate performance hides wide differences: some countries have done pretty well.

To assess these differences, *The Economist* has compiled data on five economic and financial indicators—GDP, inflation, inflation breadth, stockmarket performance and government debt—for 34 mostly rich countries. We have ranked each economy according to how well it has done on these measures, and created an overall score. The table overleaf shows the rankings. It includes some unexpected results.

For the first time in a while, the economic party is happening in the Mediterranean. Top of our list is Greece. Other countries that plumbed the economic depths in the early 2010s, including Portugal and Spain, also score highly. They are not the only pleasant surprises. Despite political chaos, Israel did well. Meanwhile, despite political stability, Germany is an underperformer. Two Baltic countries, Estonia and Latvia, which won plaudits in the 2010s for speedy reforms, come bottom.

GDP, usually the best measure of economic health, is our first indicator. Norway (helped by high oil prices) and Turkey (by a boom in sanctions-busting trade with Russia) have done better than most. The fallout from covid-19 also looms large. Thanks to strict lockdowns and a collapse in tourism, a year ago much of southern Europe was in dire straits, so the region was due a decent year. Visits to the Balearics recently rebounded beyond their pre-pandemic level. As your correspondent discovered on a recent trip to Ibiza, the island is so busy it is difficult to book a taxi or find a spot at a half-decent restaurant.

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Ireland probably had a strong year, though one not nearly as strong as GDP numbers suggest. The activities of big multinational companies, many registered there for tax purposes, have for years distorted the figures. By contrast, America's GDP numbers are misleadingly weak: in recent quarters official statisticians have struggled to account for the impact of enormous stimulus packages.

More granular data fill in the picture. Our second measure is the change in the price level since the end of 2021. Away from the world's attention, some countries have seen low inflation. In Switzerland consumer prices have risen by just 3%. The country's central bank, helped along by a strong currency, responded rapidly to the rise in prices earlier this year. Countries which have non-Russian energy sources—such as Spain, which gets much of its gas from Algeria—have also done better than average. Those reliant on Vladimir Putin for fuel have truly suffered. In Latvia average consumer prices have risen by a fifth.

Our third measure also relates to inflation. It calculates the share of items in each country's inflation basket where prices have risen by more than 2% in the past year. This provides an indication of how entrenched inflation is—and therefore hints at how quickly inflation will fall over the coming year. Some countries that suffer from high headline inflation have nonetheless been able to limit its breadth. ▸▸

It's all gone Pete Tong (for Estonia)
Selected OECD countries

(Ranking out of 34)	GDP Q4 2021-Q3 2022 % change	Consumer prices Dec 2021-Oct 2022* % change	Inflation breadth† Oct 2022, %	Share prices‡ Dec 2021-Nov 2022 % change	Public net debt as % of GDP 2021-22§ %-point change
Greece (1)	2.2	7.8	82.4	0.8	-16.0
Spain (=4)	1.5	5.7	58.8	-2.9	-3.7
Japan (8)	0.4	3.6	55.6	-0.5	4.5
France (=9)	0.5	5.6	76.5	-7.4	-0.8
Italy (=9)	1.8	10.8	64.7	-11.1	-2.9
Britain (13)	1.7	8.4	100	1.1	-3.4
United States (20)	0.2	6.9	94.4	-9.7	-4.9
Germany (30)	1.3	10.0	88.2	-17.8	0.7
Estonia (34)	-3.1	16.7	94.1	-12.8	2.7

*Or latest available †Share of product categories with an annual price rise of more than 2%
‡National stockmarket indices §Forecast
Sources: OECD; IMF; Fitch; ONS; *The Economist*

In Italy, for instance, average consumer prices have risen by 11% this year, yet "only" two-thirds of its inflation basket has above-target inflation. Japanese inflation also looks like it may fade away. Britain is in more trouble. The price of every category in its basket is rising fast.

People's sense of economic well-being does not just come from prices in the shops. They also look at the value of their pension pots and stock portfolios. In some countries it has been a terrible year for these sorts of investments. Share prices in both Germany and South Korea are down by nearly a fifth in 2022, double America's decline. Swedish stocks have done even worse. Yet there are a few spots of strength. Norway's stockmarket is up on the year. So is Britain's, which is populated by the sort of dull, plodding companies that tend to be rewarded when economic times are tough. A fall in the value of the pound has also increased the value of foreign sales.

Our final measure concerns the change in net government debt as a share of GDP. In the short run ministers are able to paper over economic cracks by increasing spending or cutting taxes. However this can create more debt and thus the need to turn the fiscal screws in the future. Some governments have spent extravagantly to cope with the cost-of-living squeeze. Germany has allocated funds worth about 7% of GDP to help with sky-high energy costs, meaning its debt-to-GDP ratio has risen. Other countries have pulled back from the splurge, helping to right the fiscal ship. Assisted by high inflation, public debt in southern European countries seems to be on the way down.

Will the gap between 2022's winners and losers persist in 2023? Before long southern Europe's economic growth, weighed down by rapidly ageing populations and high debts, will surely fall back to the region's usual less-than-stellar levels. And there are hopeful signs that in countries such as America and Britain high inflation may finally be easing, which would help them up the rankings.

Along other dimensions, differences are likely to persist, not least when it comes to those countries reliant on Mr Putin for their energy supplies. Against the odds, many managed to replenish their stores of natural gas before winter set in—but only by paying outrageous prices. With supplies now largely cut off, the coming year will be a lot more difficult. That will be a big concern in the Baltics, but less so on the other side of Europe. It is hard to worry about gas supplies while eating a giant plate of squid on an Ibicencan beach. ■

After the pandemic

Zero zero-covid

HONG KONG

China's leaders ponder an economy without lockdowns—or crackdowns

EACH DECEMBER the leaders of China's Communist Party gather to discuss their "economic work" for the year ahead. The lengthy statement they then release to the public provides a clue to their thinking and priorities. But by the time the leaders met on December 15th and 16th in Beijing, the most fateful economic choice of the next 12 months had already been made.

Whether by accident or design, local officials did not impose lockdowns in November on anything like the scale required to stop a widespread covid-19 outbreak. Their decision, if that is what it can be called, has brought an abrupt end to China's "zero-covid" policy. Now unable to defeat the virus, China's central government says it is too mild to be worth vanquishing.

This will be a great boon to China's economy—eventually. Before the country can reach that happier future, it will have to navigate the world's last great infection wave. According to HSBC, a bank, growth could fall below zero in the first quarter of 2023, compared with a year earlier.

The economy faces near-term threats to both supply and demand. Some members of the workforce will fall ill; others will take time off to look after stricken relatives. Schools have moved online in parts of China, trapping parents at home. As hospitals fill, local officials may try again to slow the disease's spread by limiting traffic between regions, gumming up logistics.

The bigger threat is to confidence and spending. Many Chinese came to resent the "zero-covid" regime, but lots still fear the disease. According to a survey by Bank of America, some 61% will stay home or go out less as infections rise. In November retail sales fell by more than 7%, adjusted for inflation, compared with a year earlier.

In Beijing, where the virus is spreading rapidly, shopping centres are unusually quiet, even as fever clinics (and some bars) are packed with people seeking relief for their body (or spirit). The threat of infection in the country's capital is so bad the National Bureau of Statistics cancelled its regular press conference reviewing the month's economic figures—as good an indicator of China's predicament as anything the bureau normally publishes.

Thus the country's leaders will have their economic work cut out in 2023. But you would not necessarily know that from reading their statement. Just as China's headline economic statistics are often suspiciously smooth, the statements China releases after its economic work conference are also artificially consistent. They repeat phrases ("proactive fiscal policy") and slogans ("housing is for living in, not for speculation") from previous years.

Presumably the aim is to create the impression of stability and continuity. In last week's statement, China's abrupt swerve away from the "zero-covid" policy is mentioned only in passing. The statement notes that China will focus on the elderly and vulnerable, and calibrate its response to infections to "get through the latest covid-19 pandemic period smoothly".

The statement does, though, recognise some of the dangers of a post-zero-covid world. China's leaders must revive market confidence at home and restore China's appeal to investors abroad, most of whom have not visited for years. "Improving public confidence and expectations" is listed as a good starting point for economic strategy in 2023. To foreign investors, China's leaders promise "maximum convenience".

The statement also provides a rare acknowledgment of criticism, or what it calls

"incorrect" interpretations. It addresses the view that China has become inhospitable to private enterprise and indisposed to reforming its big state-owned enterprises. Examples include a clampdown on indebted property developers and a regulatory blitz that humbled some of the country's most successful e-commerce firms in 2021. In response, the statement promises China will make clear its adherence to the "two unswervings", the name the party gives to its double commitment to consolidate the state sector and support the private sector.

Robin Xing of Morgan Stanley, another bank, thinks China's regulatory, macroeconomic and covid policies are aligned in favour of growth for the first time in three years. Others are more sceptical. The government's attempt to repair confidence is like breaking a horse into pieces, reassembling it and expecting it to run again, according to one netizen. The doubters will want to see more evidence that China is as committed to private enterprise as it is to its market-friendly slogans. Official rhetoric is not always a good guide to policy. If it were, China would still be persisting victoriously with zero-covid. ■

Employment

Triumph of the Luddites

SAN FRANCISCO

Covid-19 was meant to lead to job-killing automation

IT WAS MEANT to be a bloodbath. When covid-19 struck in early 2020, economists warned that a wave of job-killing robots would sweep over the labour market, leading to high and structural unemployment. One prominent economist, in congressional testimony in the autumn, asserted that employers were "substituting machines for workers". A paper published by the IMF in early 2021 said that such concerns "seem justified". Surveys of firms suggested they had grand plans to invest in artificial intelligence and machine learning.

Wonks had plenty of reason to worry. Recessions cause many companies' revenues, but not wages, to fall, making workers less affordable. Some previous downturns had produced bursts of job-killing automation, depriving people of work and leaving them at least temporarily on the economic scrapheap. Covid seemed to pose an extra threat to workers. People get sick; robots do not. Past pandemics, research suggests, have hastened automation.

More than two years on, however, it is hard to find much evidence of job-killing automation. Rather than workers complaining about a shortage of jobs, bosses complain about a shortage of workers. Across the OECD club of mostly rich countries, there is an unusually large number of unfilled vacancies, even as recession nears. In many countries the wages of the lowest-paid, the people thought to be most at risk of losing their job to a robot, are rising the fastest.

To test the doomsters' predictions more directly, we dug into occupational data for America, Australia and Britain. Borrowing a methodology developed by the Federal Reserve Bank of St Louis, we divided occupations into "routine" and "nonroutine" buckets. Routine jobs involve repetitive movements, which can be more easily learned by a machine or computer, making them in theory more vulnerable to automation.

Over time, and especially during past recessions, routine jobs have declined as a share of the workforce (see chart). But during the pandemic the rate of decline actually slowed. In the two years before the pandemic automatable jobs in Australia, as a share of the total, fell by 1.8 percentage points. In the two subsequent years they fell by 0.6 percentage points. We find similar trends in Britain, though a recent coding change makes analysis trickier. America today has slightly more routine jobs than you would expect based on pre-pandemic trends.

Economists are now working on theories which will be less prone to malfunction. Perhaps the routine roles which remain are particularly difficult to automate. Perhaps in some cases technology actually improves, rather than damages, workers' prospects. For now a simple rule will suffice: next time you hear a blood-curdling prediction about robots and jobs, think twice.

Machine, learning

United States, "routine" jobs*, % of total



*Which involve repetitive movements

Sources: Federal Reserve Bank of St Louis; *The Economist*

Monetary policy

No time like the present

TOKYO

The Bank of Japan shocks investors

IN RECENT MONTHS anticipation had grown that in 2023 the Bank of Japan (BOJ) would at last tighten monetary policy after years of no-holds-barred stimulus. Almost nobody expected it to happen in 2022. But on December 20th the bank lifted its cap on 10-year government-bond yields from 0.25% to 0.5%. The Christmas surprise caused the yen to surge—and set off speculation about what might come next.

Since 2016 the BOJ has intervened in bond markets to keep the ten-year bond yield at around 0%, a policy known as "yield-curve control". Technically, the bank permitted fluctuations of a quarter of a percentage point around the 0% goal. But the upper limit of 0.25% is what mattered, especially this year, as upward pressure on yields built around the globe. Now the BOJ will allow moves of half a percentage point around zero. After the announcement, the ten-year bond yield surged from 0.25% to 0.4%, its biggest daily shift since 2003.

The BOJ had been a global outlier, maintaining ultra-loose policy even as America's Federal Reserve and other central banks chose to raise interest rates sharply. Japan's benchmark interest rate of -0.1% has not moved in almost seven years and the bank owns over half of the government bond market. Yield-curve control was implemented as a way of allowing the BOJ to control long-term interest rates without running out of bonds to buy. Paradoxically, when central banks credibly promise to peg the price of an asset, they often need not intervene much to enforce the policy. The market implements the peg by itself.

For most of the policy's history that more or less worked. In 2022, however, the ▸▸

A bolt from the BOJ

Japan, ten-year government-bond yield, %



Source: Bloomberg

peg has come under considerable pressure as traders have speculated that monetary policy would need to be tightened. The chasm between the policies of Japan and those in the rest of the rich world caused the yen to plunge by 23% against the dollar from the start of 2022 to mid-October. In October, annual inflation was 3.6%, a 40-year high and well above the BOJ's 2% target. Though most of the inflation was imported, many central banks have been caught out since the covid-19 pandemic by assuming price growth will cool without tighter monetary policy.

Yet it was widely assumed that any pivot by the BOJ would come after its current governor, Kuroda Haruhiko, leaves in April. That policymakers moved faster makes sense: it spares the BOJ months of bond-buying to enforce the old cap, and the greater losses it would endure on its bigger bond portfolio.

How far will Japan's central bank now go? After the announcement the dollar fell by 3.4% against the yen, but the Japanese currency remains at its weakest level in two decades. Economists are watching the *shunto*, Japan's springtime wage negotiations between large companies and trade unions, for more signs of inflation. Japanese firms raised winter bonuses by 9.7%, according to *Nikkei*, a business newspaper, the largest such increase since 1975.

Mr Kuroda claims that he has not tightened monetary policy, only responded to volatile market conditions. Yet the announcement was his "sayonara present", according to Jesper Koll of Monex Group, a Japanese brokerage. "It opens the door for 'Operation Freedom' for whoever his successor will be." Japanese financial markets could be in for a turbulent 2023. ■

Buttonwood Paper tigers

India's markets are roaring. They also have serious faults

Few stockmarkets flourished in 2022. Strong performers include ones in commodity-exporting countries like Brazil, Indonesia and the Gulf states, which have benefited from the squeeze on natural resources. They also include an oddity: India. The country's Nifty 50 and Sensex indices reached record highs at the end of November. Indian stocks are up 4% in local-currency terms this year. Global stocks are down by 20%.

All this means it is a hopeful time for India. Investors are reconsidering their exposure to China, the largest emerging market. Even after a rebound triggered by China's reversal of its "zero-covid" policies, the MSCI China index has fallen by a quarter since the start of 2020, reducing its annual return over the past decade to below 1%. To many fund managers desperate for diversification, India looks the most promising alternative.

Yet the country's markets face problems that will limit its ability to take up this role. The most straightforward is their size. Indian stockmarkets are worth $3.4trn, less than the $6trn accounted for by stocks in Hong Kong and Chinese firms listed in New York—let alone the $10trn in stocks still mostly out of reach to international investors in mainland China. India could only absorb a fraction of any capital redeployed away from Chinese stocks now, and an even smaller share of what investors eventually hope to invest in the mainland.

Optimists argue that the growth of the Indian economy will solve this problem. IT firms like Infosys and Tata Consultancy Services will benefit from outsourcing. The decision by Foxconn, a Taiwanese contract manufacturer, to produce iPhones and semiconductors in India hints at the potential for larger manufacturing hubs in the future, featuring home-grown firms. But there is a problem: Indian stocks are expensive. Their forward price-to-earnings ratio of around 22 is more than double Chinese stocks' multiple of ten and more than three times Brazilian stocks' multiple of seven. They are even pricey compared with America's tech-heavy offerings.

India is an importer of commodities, and the central bank has been forced to raise interest rates in defence of the rupee. This should have reduced valuations; the fact that it has not reflects an outbreak of retail mania. The number of participants in Indian markets has more than tripled since the start of 2022. In the same period retail buyers spent a net 3trn rupees ($36bn) on stocks, a stark rise from the minuscule inflows and occasional outflows recorded between 2015 and 2019. India's economic prospects are strong, but 2023 looks likely to be a difficult year around the world. A slump in retail interest could see asset prices tumble.

India's stockmarkets are far more open to foreign investors than mainland China's. But when you broaden the lens to look at debt and currency trading, its capital markets remain only partly open, reflecting anxiety that speculation could destabilise the economy. Raghuram Rajan, governor of the Reserve Bank of India (RBI) in 2013-16, wanted to internationalise India's markets and currency. Despite his instincts as a market-minded liberal, he made slow progress. In the past year the RBI has reportedly leaned on domestic banks, discouraging participation in the offshore rupee market, so as to retain more control of the currency's value against the dollar.



There are signs that India wants to open up more. In October T. Rabi Sankar, deputy governor of the RBI, spoke of the need to entice the capital required to fund Indian growth, despite the reduced control of domestic monetary policy this would inevitably bring. Yet there are logistical hurdles. In the same month JPMorgan Chase decided not to include India in a widely followed bond index, reflecting investor concerns about fiddly registration processes and whether its clearing and settlement systems could handle a surge in inflows. In any case opening up India's capital markets further would be a brave undertaking at a time when global markets are fragile and American interest rates are rising.

India has a compelling story. It offers a vibrant IT-services industry, a burgeoning domestic tech scene, an increasingly attractive location for global manufacturers—and strong economic growth. This is enticing when the appeal of its mighty neighbour to the northeast has diminished. But a pricey stockmarket and a tentative approach to opening up is preventing the country from achieving its potential in capital markets. Fund managers desperate for diversification should not rely on India alone.

Free exchange | Arthur Burns, reconsidered

The Federal Reserve's great anti-hero deserves a second look



SINCE INFLATION took off, a former Federal Reserve chair has been on the minds of politicians and pundits. A number have argued that Jerome Powell, the current incumbent, must not become the next Arthur Burns. As chair of the Fed in the 1970s, Burns represents central-banking failure: a weak leader who blinked in the face of inflation and steered the economy towards disaster.

It is not that this warning from history is incorrect. Richard Nixon picked Burns to run the Fed, viewing him as a friend who would do his bidding. Despite stubborn inflation, Nixon pressed Burns to cut interest rates in 1971, thinking it would help him win re-election. Sure enough, the Fed did just that. Nixon was re-elected and inflation soared, hitting double digits by 1974.

But the story is more complicated than the basic outlines suggest, and its complexity contains lessons for today's policymakers. With the holiday season upon us—and with the Fed approaching a turning point in monetary policy—it is a fine time to reassess the legacy of the much-maligned central banker.

Start with what happened after inflation took off. The Fed jacked up interest rates from 3% in 1972 to 13% in 1974, one of its sharpest-ever doses of tightening, and enough to help tip the economy into a deep recession. Doing so took some of the heat out of price growth, with inflation settling at around 6% for the remainder of Burns's tenure. This was uncomfortably high, and Burns never delivered the death blow to inflation that Paul Volcker did in the early 1980s. Nevertheless, his initial assault heralded a new era. In 2016 economists from the Fed's branch in Richmond assessed monetary-policy settings over the years. Their model suggested that the "Volcker shock" had not appeared like a bolt from the blue. Burns had laid the groundwork for it.

He did this in formidable circumstances. An oil shock that began in 1973 led to a near quadrupling in energy prices as well as a surge in food costs. A second oil shock in 1978, just after Burns left the Fed, kicked off another inflationary surge. Given this backdrop, how much of the inflation can truly be blamed on the Fed? A review written in 2008 by Alan Blinder and Jeremy Rudd, two economists, found that supply-side factors were decisive. They calculated that the energy and food crises accounted for more than 100% of the rise in headline inflation relative to its baseline level. The Fed could have reacted more strongly, given that inflation had already been unanchored. But Burns was not responsible for the massive shocks facing the economy.

Burns's troubles also illustrate the pitfalls of real-time indicators. The Fed today is seen as "data-dependent". If inflation momentum stays relatively weak, its next rate rise is likely to be one quarter of a percentage point; if inflation shoots back up, a half-point rise may be on the menu. That is entirely reasonable. But consider the head-fake of 1975. Initial data from the first quarter registered a 10% annualised drop in GDP and a remission in price pressure. The Fed cut rates aggressively. Subsequent revisions showed that the GDP loss was only about 5% and that inflation had remained persistent. If this had been known at the time, Burns's Fed might well have acted differently.

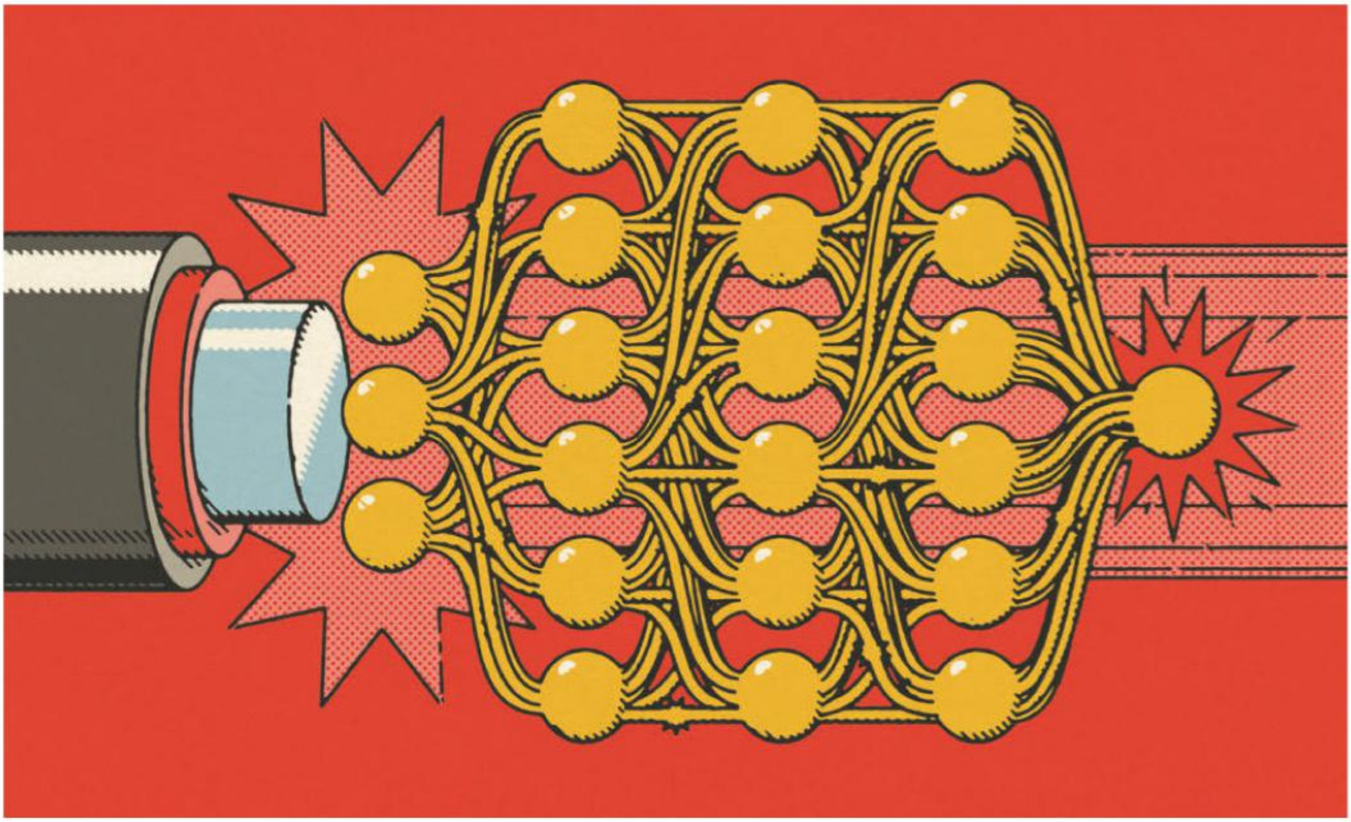
That real-time figures may be flawed is, on one level, not terribly helpful: it is impossible to know whether future revisions will push growth up or down. Yet this uncertainty does counsel against overreacting to limited data. Having tightened policy so much over the past year, the Fed wants to proceed more gingerly. Even if there is an upside surprise in inflation between now and its next meeting in February, sticking to that gradualism may still be the right course—just as Mr Powell has avoided reading too much into an apparent inflation slowdown in November.

The main economic outcome associated with Burns's Fed is, of course, high inflation. But his relatively loose policy also fuelled an investment boom. Capital expenditures—that is, money spent by businesses on things such as buildings and equipment—reached about a third of American GDP in 1978, which still stands as the highest level since at least 1946. Responding to the supply shocks at the time, much of that went into energy and commodity production. Jeffrey Currie of Goldman Sachs, a bank, recently noted that these investments helped to "de-bottleneck" oil and metals production capacity for decades, setting the economy up for lower inflation in the long run.

Today the world's economy is at another inflection point. The frayed global trading system, declining immigration and climate change may well constrain America's productivity, leading to persistently lower growth and higher inflation. There is also renewed debate among economists about whether the Fed should pursue a slightly higher inflation target than 2%. Such a switch could help it to avoid squeezing the economy too hard amid profound challenges. The Fed's task is to accurately forecast the future shape of the economy and its interaction with monetary policy. The deep effects of the 1970s' investment boom are a reminder that it must pay heed to the current array of economic structural shifts.

First-degree Burns

The closer one examines Burns's record, the more that complexities emerge. The former Fed chair carefully managed the dissolution of a major bank in 1974, in an augury of the central bank's present framework of letting bad firms fail so long as doing so does not precipitate a financial crisis. His advocacy of wage controls is now seen as a classic example of bad policy, doomed to failure. Yet the context was a powerful union movement which had locked in upward cost-of-living adjustments—something that no longer exists. Even his relationship with Nixon is far from straightforward. Burns was no sycophant, and did at least try to resist the president's bullying. All this provides the final and most important lesson from the Fed's great anti-hero: historical analogies are useful, but rarely the whole story. ■



Information technology

Enlightened computing

Optical data-processing is well-suited to the age of deep learning

MODERN INFORMATION technology (IT) relies on division of labour. Photons carry data around the world and electrons process them. But, before optical fibres, electrons did both—and some people hope to complete the transition by having photons process data as well as carrying them.

Unlike electrons, photons (which are electrically neutral) can cross each others' paths without interacting, so glass fibres can handle many simultaneous signals in a way that copper wires cannot. An optical computer could likewise do lots of calculations at the same time. Using photons reduces power consumption, too. Electrical resistance generates heat, which wastes energy. The passage of photons through transparent media is resistance-free.

For optical computing to happen, though, the well-established architecture of digital electronic processing would have to be replaced by equivalent optical components. Or maybe not. For some people are working on a novel optical architecture that uses analogue rather than digital computing (that is, it encodes data as a continuous signal rather than as discrete "bits"). At the moment, this architecture is best suited to solving one particular class of problems, those of a branch of maths called linear algebra. But that is a potentially huge market, for linear algebra is fundamental to, among other matters, artificial neural networks, and they, in turn, are fundamental to machine learning—and thus artificial intelligence (AI).

The power of the matrix

Linear algebra manipulates matrices. These are grids of numbers (representing coefficients of simultaneous equations) that can be added and multiplied a bit like individual numbers. Among the things which can be described by matrices are the equations governing the behaviour of electromagnetic radiation (such as light) that were discovered in the 19th century by James Clerk Maxwell. Light's underlying Maxwellian nature makes it easy, using appropriate modulating devices, to encode matrix data into light beams and then manipulate those data.

Artificial neural networks are programs that represent layers of nodes, the connections between which represent numbers in matrices. The values of these change in response to incoming signals in a way that results in matrix multiplication. The results are passed on to the next layer for another round of processing, and so on, until they arrive at a final output layer, which synthesises them into an answer. The upshot is to allow a network to recognise and learn about patterns in the input data.

The idea of turning neural networks optical is not new. It goes back to the 1990s. But only now has the technology to make it commercially viable come into existence. One of the people who has observed this transition is Demetri Psaltis, an electrical engineer then at the California Institute of Technology (Caltech) and now at the Swiss Federal Institute of Technology in Lausanne. He was among the first to use optical neural networks for face recognition.

The neural networks of Dr Psaltis's youth were shallow. They had but one or two layers and a few thousand nodes. These days, so-called deep-learning net- ▸▸

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works can have more than 100 layers and billions of nodes. Meanwhile, investments by the telecoms industry—the part of IT that ships data around through all those optical fibres—have made it possible to fabricate and control optical systems far more complex than those of the past.

That is the technological push. The financial pull derives from shedding the cost of the vast amount of electricity consumed by modern networks as they and the quantities of data they handle get bigger and bigger.

Most efforts to build optical neural networks have not abandoned electrons entirely—they pragmatically retain electronics where appropriate. For example, Lightmatter and Lightelligence, two firms in Boston, Massachusetts, are building hybrid "modulators" that multiply matrices together by manipulating an optically encoded signal according to numbers fed back electronically. This gains the benefit of parallelism for the optical input (which can be 100 times what electronics would permit) while using more conventional kit as what Nicholas Harris, Lightmatter's founder, describes as the puppet master.

The modulators themselves are made of silicon. Though this is not the absolute best material for light modulation, it is by far the best-developed for electronics. Using silicon allows hybrid chips to be made with equipment designed for conventional ones—perhaps even affording it a new lease of life. For, as Maurice Steinman, vice-president of engineering at Lightelligence, observes, though the decades' long rise in the performance of electronics is slowing down, "we're just at the beginning of generational scaling on optics".

Ground zero

Ryan Hamerly and his team at the Massachusetts Institute of Technology (the organisation from which Lightelligence and Lightmatter were spun out) seek to exploit the low power consumption of hybrid optical devices for smart speakers, lightweight drones and even self-driving cars. A smart speaker does not have the computational and energetic chops to run deep-learning programs by itself. It therefore sends a digitised version of what it has heard over the internet to a remote server, which does the processing for it. The server then returns the answer.

All this takes time, though, and is insecure. An optical chip put in such a speaker could perform the needed linear algebra there and then, with low power consumption and without having to transfer potentially sensitive data elsewhere.

Other researchers, including Ugur Tegin, at Caltech, reckon optical computing's true benefit is its ability to handle large data sets. At the moment, for example, image-recognition systems are trained on low-resolution pictures, because high-res versions are too big for them to handle efficiently, if at all. As long as there is an electronic component to the process, there is limited bandwidth. Dr Tegin's answer is to forgo electronics altogether and use an all-optical machine.

This has, however, proved tricky—for what allows neural networks to learn pretty well any pattern thrown at them is the use, in addition to all the linear processing, of a non-linear function in each of their nodes. Employing only linear functions would mean that only linear patterns could be learned.

Fortunately, although light does behave mostly in a linear fashion, there is an exception. This, Dr Tegin explains, is when an extremely short and intense pulse of it is shone through a so-called multi-mode fibre, which exploits multiple properties of light to enhance its ability to carry parallel signals. In these circumstances, the pulse's passage changes the properties of the material itself, altering the behaviour of the passing light in a non-linear manner.

Dr Tegin exploited this feature in what is, save its final output layer, an all-optical network. He describes this in a paper published last year in *Nature Computational Science*. He is able to keep all of the information in an optical form right up until its arrival at the last layer—the one where the answer emerges. Only then is it converted into electronic form, for processing by the simpler and smaller electronic network ▸▸

Cryptography

Trust no one

Optical computing may enable a cryptographic breakthrough

THE DIGITISATION of modern life means data security is ever more important. Data in storage and transit are normally encrypted, and therefore safe from prying eyes. But for computation to happen, they usually have to be unencrypted first. This is a particular problem with so-called cloud computing (in reality, just row upon row of stacks of computers in server farms), which happens beyond a data-owner's control. And it is getting worse, as more and more devices refer calculations back to various clouds, rather than doing them locally.

A possible answer is a technique called fully homomorphic encryption (FHE). This permits computation directly on encrypted data. Someone with the correct key could, using FHE, send information to a cloud, have it processed there, and get the results back without putting anything sensitive at risk.



The difficulty with this approach is that it is slow. Very slow. Nick New, boss of Optalysys, a small firm in Britain, says a computation that takes a second on unencrypted data might require 1m seconds with FHE. Mr New's answer, as his firm's name suggests, is to employ optical rather than electronic computing.

Optical computing (see adjacent article) encodes data in beams of light instead of electric currents. The computation is done by manipulating the beams. This works well for a type of mathematics called linear algebra—and luckily, Fourier transforms, a way of speeding up all the multiplications involved in FHE, are easily handled this way. Mr New reckons FHE and optical computing together would reduce the processing time in his putative problem from 1m seconds to between ten and 100.

In Optalysys's system, the information is encoded into the phase and amplitude of many different beams. These are then sent in particular directions by structures called waveguides, before being shone into free space, where they combine and interfere with each other.

The computation happens when the resulting wavefront passes through a specially designed lens, the output of which is translated into an electrical signal, for more conventional processing, by a camera. A bonus is that, like all optical computing, the actual computation consumes no energy, saving both money and carbon-dioxide emissions.

which makes up this layer.

Meanwhile, at the University of California, Los Angeles, Aydogan Ozcan is taking yet another approach to all-optical matrix processing. In a paper published in *Science* in 2018, he and his collaborators describe how to create optical devices that do it without involving electrons at all.

The magic here lies in the use of thin sheets of specially fabricated glass, each the size of a postage stamp, laid on top of each other in stacks analogous to the layers of an artificial neural network. Together, these sheets diffract incoming light in the way that such a neural network would process a digital image.

In this case, the optics work passively, like the lens of a camera, rather than receiving active feedback. Dr Ozcan says that provides security benefits. The system never captures images or sends out the raw data—only the inferred result. There is a trade-off, though. Because the sheets cannot be reconfigured they must, if the inference algorithm changes, be replaced.

How far optical computing of this sort will get remains to be seen. But AI based on deep learning is developing fast, as recent brouhaha about ChatGPT, a program that can turn out passable prose (and even poetry) with only a little prompting, shows. Hardware which can speed up that development still more is thus likely to find favour. So, after decades in the doldrums, the future of optical computing now looks pretty bright. ■

Nanotechnology

Layering it on

How to keep windows clear using gold and sunlight

As THE NORTHERN hemisphere's winter arrives, the problem of fogged-up car windscreens becomes more pressing for drivers. When humid air hits a surface colder than it is the water vapour it carries condenses onto that surface as myriad tiny droplets. These scatter light at random. The result, if the surface is transparent, looks to a human eye like fog. Depending on what is fogged, be it windows, spectacle lenses or windscreens, that can be a curiosity, a nuisance or a serious hazard.

Antimisting sprays are one way to deal with such fogging. But they need frequent reapplication. Another approach is to embed within the thing to be demisted a set of electrically powered heating wires. That works for a car's rear window but not (because of the visual distraction created) for its front windscreen. Nor does it suit the windows of buildings or the lenses of spectacles to be demisted in this way.

Iwan Hächler and Dimos Poulikakos of the Swiss Federal Institute of Technology in Zurich have, however, come up with another way of warming something up to stop condensation forming. Their new material, which they describe in *Nature Nanotechnology*, is a coating ten nanometres thick. It is flexible, easily made using existing processes, and can be applied as a coating to glass or plastic, or embedded inside such materials. Its demisting properties are powered by sunlight.



A mist that won't be missed

In effect, this material is a gold sandwich. The "bread" of this butty is a pair of layers, top and bottom, of titanium dioxide, each three nanometres thick. The filling is a four-nanometre deep golden filigree. The whole kaboodle lets visible light pass untrammelled, while absorbing infrared and converting it into heat. And there is plenty to be absorbed. Only about 40% of solar radiation is visible to the eye. More than 50% of it is infrared.

It is the filling that warms the glass. When gold is deposited onto a surface at random, it first forms miniature islands. Since these are not connected to each other, the result is an insulator. Then, as more gold is added, bridges form between the islands. At a certain point these bridges transform the developing network from an insulator into a conductor, by letting electrons hop from island to island. That permits heat to spread.

The network will now, like any other metal, absorb heat if left in the sunshine. It does so best, Mr Hächler and Dr Poulikakos say, when it reaches the so-called percolation limit—the moment at which it switches from an archipelago to an electrically interconnected sheet.

The titanium-dioxide layers boost that absorption. This substance has a high refractive index, meaning the speed of light passing through it is greatly reduced. That prolongs the time such light can interact with (and thus heat up) the gold. The upper layer of titanium dioxide also protects the gold beneath it from damage.

Glass coated with Mr Hächler's and Dr Poulikakos's invention is, they claim, four times more effective at preventing fog than an uncoated surface. It absorbs around 30% of solar radiation incident upon it—which, on a sunny day, increases the temperature of what it is applied to by around 8°C. On a cloudy day, that temperature rise is closer to 3-4°C. But in either case the enhancement is sufficient both to remove any fog that has condensed and to prevent new fog forming. The main problem is that it does not work at night.

The next step, Mr Hächler says, is to find the product's best market. Dr Poulikakos reckons spectacles are a good starting point. (This is not an entirely disinterested suggestion, for he wears them himself.) Spectacle lenses already have many layers of coatings applied to them. The cost of adding this extra one is low. Even though gold is used, so little is required that the materials themselves are worth only 20 cents or so. For the two inventors, though, the idea might prove a gold mine. ■



The art of war

Heart of darkness

MADRID

Francisco Goya's vision of war is as urgent and powerful as ever

THE LINE of drably uniformed infantrymen, rifles aimed, forms a forceful diagonal across the right side of the painting, a machine of terror. Their target is a terrified rebel in a white shirt, his arms flung upwards in vulnerability and defiance, imitating Christ on the cross. His comrades cover their faces. Several already lie inert on the ground in pools of blood.

The subject of Francisco Goya's "The Third of May 1808" (pictured), also known as "The Executions", is the reprisals exacted by Napoleon's troops after a rebellion by the populace of Madrid, portrayed in a companion painting, all slashing daggers and sabres. Yet it is also a universal indictment of violence. "It's a work of today, of Ukraine, of all wars," says Gudrun Maurer of the Prado museum in Madrid, where it hangs. "You could put it in a square in Kyiv and people would understand it."

Almost two centuries after his death Goya seems ever more contemporary, especially amid a war in Europe. He was not the first war artist but no one has captured its horrors more powerfully. Many of his concerns—the exploitation of women, mental health, human rights and the treatment of prisoners, the power of false beliefs and fake news—resonate today. He was the first Western artist to paint his own ideas, visions, dreams and nightmares, not just external realities. In other words, he was "the first Modernist", as Robert Hughes, an art critic, called him, and the first Expressionist. His eye is searching, often compassionate and ultimately bleak.

Not surprisingly, Goya is in fashion, though he has rarely been out of it. The Fondation Beyeler in Basel staged a rare blockbuster show devoted to him in 2021. Next summer an exhibition in Oslo will pair works by Goya with those of Edvard Munch, whose masterpiece "The Scream" echoes some of the Spaniard's images. For several contemporary artists, such as Jake and Dinos Chapman, Emily Lombardo and Michael Armitage, Goya is a direct point of reference. Last year Philippe Parreno, a French video artist, released "La Quinta del Sordo", a 40-minute film showing Goya's late "Black Paintings" in swirling hyper-close-ups, set to a soundtrack of interplanetary roars and moans. The effect is ghoulish and mesmeric. Two Goya portraits will be auctioned at Christie's in January; they seem guaranteed to smash the record price for his work, currently $7.8m.

Goya was an extraordinarily versatile and innovative artist who lived a long life, dying in 1828 aged 82 in voluntary exile in Bordeaux. He was born in a village near Zaragoza to middle-class parents, his father a professional gilder. He was ambitious—and supremely confident of his abilities. Moving to Madrid, he became court painter to three successive monarchs and director of painting at the Royal Academy of Fine Arts. His early work included the religious paintings that were obligatory for a budding artist. A breakthrough came with commissions for scores of cartoons for the royal tapestry factory portraying scenes of Spanish life. He became an insightful and sought-after portraitist.

But he retained a lifelong appreciation ▸▸

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of demotic tastes—bullfighting, hunting, the fiesta—even as he made friends among the intellectuals of the Spanish Enlightenment. His knowledge of those contrasting worlds, and affection for them, gave him a unique understanding when they came into conflict. "His art is always aimed at more than one side," says Ms Maurer.

From the 1790s, two things happened to turn Goya into the artist so admired today. One was a mysterious illness, possibly lead poisoning from his paints, that left him deaf. That caused him to look inwards. His paintings began to deal with beliefs and transgressions. A great colourist, his canvases became almost monochrome, dominated by blacks and browns. One series denounced violence against women. Paintings now in the Academy detailed fanaticism in flagellants and the Inquisition, the phenomenon of witchcraft, the plight of prisoners and fantasies of the madhouse that mocked the "normal" world. Goya also became a prolific printmaker. In "Los Caprichos" ("The Caprices") he lampooned the church and social hypocrisies.

The second turning-point was the French revolution, with which he sympathised, and Napoleon's invasion of Spain and the long Peninsular war that followed. The ensuing brutality forced him to review his ideas. "Goya goes from being a follower of the Enlightenment who believes in the capacity for regeneration to a person whose experience leads to despair," according to Javier Portús, the chief curator for Spanish painting at the Prado.

This bleak vision was expressed in the "Black Paintings", executed as frescoes on the walls of La Quinta del Sordo, Goya's country house, and now occupying Room 67 of the Prado. They were painted for himself, not the public or the court. They are peopled by nightmare figures, crones and paupers in rags, their mouths gaping cavities. It is as if dead souls returned to haunt the living. Yet they are recognisable in the homeless people found in the streets of post-pandemic cities.

There was despair, too, in a series of prints, "The Disasters of War", not published until 1863: body parts strewn on trees, piles of corpses, people being clubbed to death. "I saw it," he wrote on two of the prints. He certainly visited the ruins of Zaragoza after the French siege, and he lived through the famine in Madrid in 1811-12 in which perhaps 20,000 died. Yet the power of his portrayal of war is not as a literal record, but that it cuts to the essence. It is war seen close-up, never heroic.

Each age sees what it wants in Goya, Mr Portús notes. That testifies to his genius in communicating ideas and images. He was of his time; other Enlightenment artists shared his concerns. But he alone transcended that time to speak universal truths about the human condition so directly. ■

Power families

Rogues' gallery

The World: A Family History. By Simon Sebag Montefiore. *W&N; 1,344 pages; £35. To be published in America by Knopf in May; $45*

LOCKDOWN, FOR Simon Sebag Montefiore, was not a time for baking or box sets. Instead he set about recounting the history of the world through the lives of its most influential families. He begins over 4,000 years ago with the rape and vengeance of Enheduanna, daughter of Sargon, the self-made ruler of the Akkadian empire in Mesopotamia. He ends with the Trumps and the Xis. Sargon's family faced the same problems that afflicted nearly every dynastic empire that followed: "The bigger it grew, the more borders had to be defended; the richer it was, the more tempting a target it became for less settled neighbours—and the greater was the incentive for destructive family feuds."

The device of weaving together the past using the most enduring and essential unit of human relations is inspired. It lets readers empathise with people who helped shape historical events and were shaped by them. They have hopes, fears, lusts and ambitions that are familiar, even if they are manifest in ways that border on the psychopathic. The method also allows the author to cover every continent and era, and to give women and even children a voice and presence that they tend to be denied in more conventional histories.



Empress Zoe's golden touch

Despite the book's formidable length, there is never a dull moment. The story moves at pace across terrible battles, court intrigues, personal triumphs and disasters, lurid sexual practices and hideous tortures. Almost every page offers what used to be known in Fleet Street as a "marmalade dropper". Amid the sensationalism, you find yourself adapting to the cruelties of moral universes that are both alien and, on their own terms, comprehensible.

The technicolour cast includes the Borgias, the Habsburgs, the Kennedys and the Nehrus. Between the great, the good, the damned and the merely incompetent or criminal, there are far too many stars to mention. But some stand out:

• Darius the Great defeated eight rivals for the throne of Persia and ensured stability by marrying nearly all his female relations. Ruling with splendour and conquest for nearly 40 years until 486BC, he declared: "I am Darius, King of Kings. Whoever helped my family, I favoured; whoever was hostile, I eliminated."

• Liu Bang was a hard-drinking peasant nicknamed "Little Rascal" who became a warlord. Through clever generalship and (for the time) enlightened politics, he founded the Han dynasty in 202BC. It ruled China with only a minor interruption for more than 400 years.

• Aged 56, and still exceptionally beautiful, Empress Zoe, niece of Basil the Bulgar-Slayer, drowned her husband Romanos in his bath in 1034 with the help of a 25-year-old paramour. Despite a brief exile, Zoe was kingmaker and the real power in Constantinople until her death 16 years later.

• Thanks to his family's obsession with consanguinity, poor Carlos II, the last Habsburg king of Spain, was born with a brain-swelling, one kidney, one testicle and a jaw so deformed that he could barely chew. Only semi-literate, he died in 1700 of explosive dysentery.

For her ruthless cunning and insatiable appetite for power and sex, this reviewer's favourite character is Empress Wu, who at 14 was a palace maid and rose to become the most dominant woman in Chinese history. To secure her place as empress consort, she may have strangled her own baby so as to accuse a rival of murder. She died as empress dowager at the age of 81 in 705AD, having seen off internal and external foes for over 50 years, supposedly kept youthful by drinking the semen of much younger (and usually doomed) lovers.

A perennial theme is the dynastic problem caused by having too many sons, who ▸▸

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fight each other for the throne—a difficulty exacerbated by the sensual temptations afforded by absolute power. For instance, Ismail, a slave-trading sultan of Morocco, fathered 1,171 children by the time he died in 1727. (His heirs still rule today.) As Nizam al-Mulk, an 11th-century vizier, observed: "One obedient slave is better than 300 sons for the latter desire their father's death, the former their master's glory."

A solution sanctioned by Mehmed II, the conqueror of Constantinople, was to make fratricide an official policy. Having had his own brother strangled, he decreed: "Whichever of my sons inherits the sultan's throne it behoves him to kill his brothers." Around 80 Ottoman princes were strangled by bowstring so as to avoid spilling royal blood.

The author tells these stories with verve and palpable relish for the unbridled sex and inventive violence that run through them. His character sketches are pithy and witty. Mary, Queen of Scots was "a calamitous bungler of impulsive stupidity and unwise passion". The Duke of Buckingham, a Jacobean playwright, rake and Catholic plotter, was "slippery, graceful and vicious". The footnotes, often short essays in themselves, have the acid drollery of Edward Gibbon.

As the chronicle reaches more familiar territory some of the zest is lost. Margaret Thatcher is no Empress Wu; Donald Trump, grandson of Friedrich Drumpf (owner of the Poodle-Dog, a bawdy restaurant in Seattle), seems quite forgiving compared with Genghis Khan. Occasionally the segues are lumpy: "Meanwhile in China..." But overall this book is a triumph and a delight, an epic that entertains, informs and appals in enjoyably equal measure. ■

Back Story The year of the underdogs

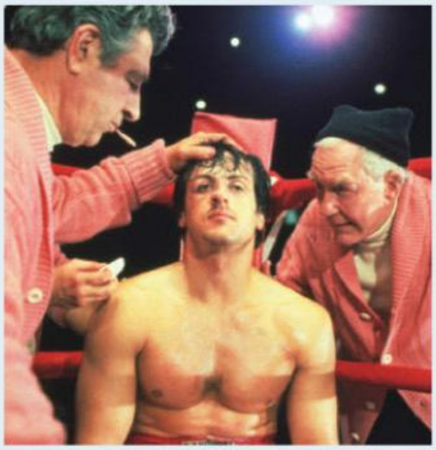
From Volodymyr Zelensky to the Moroccan football team, they shone in 2022

ROCKY HAS always been a good fighter. He hits like hell and his nose has never been busted. The trouble is, he never got a break. He lives in a hovel and rarely takes off his fingerless gloves. But lightning strikes, and Apollo Creed, the world heavyweight champion, gives him a shot at the title. "This time", says the loan shark who employs Rocky as muscle, "Lady Luck may be in your corner."

"We are the Rocky of this World Cup," said Walid Regragui, Morocco's football coach, invoking the latter-day saint of underdogs at the close of what has been the underdog's year. His team were not the only outsiders to stun the tournament. Saudi Arabia beat Argentina; Japan beat Germany. But the dauntless Moroccans were the underdog kings, seeing off the Belgians, Spanish and Portuguese, three of the favourites, to become the first Arab and African side to reach a semi-final. (In the stands, some Iranian fans, underdogs in a benighted nation, booed their country's anthem and cried.)

Morocco proved an essential verity of underdogs: they can triumph even when, technically, they lose—as the Spartans did at Thermopylae and the Finns to the Soviets in the "winter war". Rocky loses on points to Creed, but shows himself, and the world, that he is more than "just another bum from the neighbourhood". If you haven't already seen it, look up the clip of Sofiane Boufal, a Moroccan playmaker, dancing with his mother on the pitch. It is the jig of a champion.

Fictional underdogs prowled two of their habitual environments on screen in 2022. One was the workplace. In "Severance", office grunts struggled to break free of a shadowy dystopian company. "Slow Horses" portrayed a bunch of has-been spies, down but not quite out. In "The White Lotus", American tourists



with more money and libido than sense were rinsed by a pair of Sicilian hookers. In "Triangle of Sadness", meanwhile, the sinking of a superyacht turned a minion with survival skills into an overlord.

The other underdog habitat—as always and everywhere—was the family. "Bad Sisters" depicted an abused wife and her officious siblings. A musical adaptation of "Matilda", Roald Dahl's underdog revenge fantasy, is out soon on Netflix. True, Matilda has magic powers that most underdogs lack. But she is also a classic product of what psychologists have called "desirable difficulties".

Riffing on that idea, in his book "David and Goliath" Malcolm Gladwell explores how childhood hardships can sometimes nurture resilience and ingenuity, leading the Matildas of the world to outperform gifted peers who "inherited an excessive amount of psychological health". The underdog, observes Mr Gladwell, may be liberated by having nothing to lose. "It really don't matter," Rocky says of his expected thrashing. "I was nobody before."

It is not just the ride from the bottom to the top, wilder and more exhilarating than shorter ascents, that makes these stories so rousing. Underdog heroes and heroines do not merely surmount obstacles or defeat adversaries. The best and most moving beat a whole rotten system. They hold out hope that might—or reputation, power and influence—will not always prevail; that even if the rules are rigged, the game can still be won. They suggest life is not predetermined. They make their own fate.

The staggering underdog feat of 2022 involved an actor, but he wasn't acting. Volodymyr Zelensky faced down a nuclear-armed invader with a smartphone camera, rhetoric and guts. Ukrainian civilians lay down in the path of Russian tanks. In his book Mr Gladwell argues that, though he brags like a wrestling villain, lumbering Goliath was always likely to lose to a nimble shepherd, equipped with a sling and those five smooth stones. Unconventional tactics, he notes, often vanquish heavy arms. Likewise, in ten months of war Ukraine's grit and invention have come to seem formidable assets.

But the contest looked much less even when Russian forces rolled across the border in February. The underdog's resistance songs became the soundtrack of the year: a rendition of "Let It Go" by seven-year-old Amelia Anisovych in a bomb shelter in Kyiv; Andriy Khlyvnyuk, a Ukrainian rock star, dressed in fatigues and singing "Chervona Kalyna" ("Red Viburnum"), an anthem of defiance, in front of St Sophia cathedral.

To put all that another way: in the end, the loan shark is wrong about Rocky. His story is not about luck; it is about justice. The most inspiring underdogs get only what they deserve. All they needed was a break.

Economic & financial indicators

Economic data

	Gross domestic product, % change on year ago: latest		quarter*	2022†	Consumer prices, % change on year ago: latest		2022†	Unemployment rate, %		Current-account balance, % of GDP, 2022†	Budget balance, % of GDP, 2022†	Interest rates, 10-yr gov't bonds latest,%	change on year ago, bp	Currency units, per $ Dec 19th	% change on year ago
United States	1.9	Q3	2.9	1.9	7.1	Nov	8.1	3.7	Nov	-3.5	-5.5	3.5	208	-	
China	3.9	Q3	16.5	3.1	1.6	Nov	2.0	5.7	Nov‡§	2.4	-5.6	2.9 §§	2.0	6.97	-8.6
Japan	1.5	Q3	-0.8	1.5	3.8	Oct	2.5	2.6	Oct	1.9	-6.3	0.3	21	137	-17.1
Britain	2.4	Q3	-0.7	4.4	10.7	Nov	8.0	3.7	Oct††	-5.9	-6.6	3.3	257	0.82	-8.5
Canada	3.9	Q3	2.9	3.1	6.9	Oct	6.7	5.1	Nov	-0.2	-2.3	2.8	147	1.37	-6.3
Euro area	2.3	Q3	1.3	3.1	10.1	Nov	8.4	6.5	Oct	1.3	-4.2	2.2	250	0.95	-6.2
Austria	1.7	Q3	-13.5	4.8	10.6	Nov	8.8	4.6	Oct	-0.7	-3.5	2.8	306	0.95	-6.2
Belgium	1.9	Q3	0.7	2.7	10.6	Nov	10.3	5.4	Oct	-1.5	-4.8	2.8	286	0.95	-6.2
France	1.0	Q3	0.7	2.5	6.2	Nov	6.0	7.1	Oct	-1.9	-5.3	2.7	274	0.95	-6.2
Germany	1.3	Q3	1.6	1.6	10.0	Nov	8.4	3.0	Oct	4.1	-4.1	2.2	250	0.95	-6.2
Greece	2.1	Q3	-2.1	5.0	8.5	Nov	9.6	11.6	Oct	-5.9	-4.5	4.7	340	0.95	-6.2
Italy	2.6	Q3	1.9	3.7	11.8	Nov	8.6	7.8	Oct	-0.8	-5.7	4.2	324	0.95	-6.2
Netherlands	3.1	Q3	-0.9	4.2	9.9	Nov	12.0	3.7	Oct	6.3	-1.4	2.5	284	0.95	-6.2
Spain	3.8	Q3	1.0	4.5	6.8	Nov	8.5	12.5	Oct	0.2	-4.7	3.2	286	0.95	-6.2
Czech Republic	1.7	Q3	-0.6	2.0	16.2	Nov	15.7	2.3	Oct‡	-3.7	-5.1	4.8	199	23.1	-2.4
Denmark	3.3	Q3	2.1	2.8	8.9	Nov	7.9	2.6	Oct	9.0	0.9	1.2	144	7.07	-6.2
Norway	2.5	Q3	6.3	3.5	6.5	Nov	6.4	3.4	Sep‡‡	18.8	12.2	3.0	142	10.0	-9.5
Poland	4.5	Q3	4.1	5.0	17.4	Nov	14.6	5.1	Nov§	-3.3	-3.7	6.7	356	4.43	-7.3
Russia	-4.0	Q3	na	-3.6	12.0	Nov	14.0	3.9	Oct§	12.6	-1.8	10.2	167	68.6	8.0
Sweden	2.6	Q3	2.4	3.0	10.9	Oct	7.9	7.1	Oct§	3.7	-0.5	2.0	188	10.42	-12.7
Switzerland	0.5	Q3	1.0	2.0	3.0	Nov	3.1	2.0	Nov	5.5	-1.0	1.3	155	0.93	-1.2
Turkey	3.9	Q3	-0.5	5.1	84.4	Nov	73.5	9.9	Oct§	-7.0	-3.3	10.5	-1078	18.6	-12.1
Australia	5.9	Q3	2.6	3.7	7.3	Q3	6.4	3.4	Nov	2.0	-1.9	3.4	183	1.49	-6.0
Hong Kong	-4.5	Q3	-10.0	-2.4	1.8	Oct	1.9	3.8	Oct‡‡	4.4	-6.4	3.3	194	7.78	0.3
India	6.3	Q3	19.3	6.9	5.9	Nov	6.7	8.0	Nov	-2.7	-6.4	7.3	91	82.7	-8.0
Indonesia	5.7	Q3	na	5.1	5.4	Nov	4.2	5.9	Q3§	1.1	-3.9	6.9	48	15,598	-7.9
Malaysia	14.2	Q3	na	7.5	4.0	Oct	3.4	3.6	Oct§	1.5	-6.0	4.0	44	4.43	-4.7
Pakistan	6.2	2022**	na	6.2	23.8	Nov	18.2	6.3	2021	-4.0	-7.7	13.6 †††	189	225	-21.0
Philippines	7.6	Q3	12.1	7.7	8.0	Nov	5.6	4.5	Q4§	-4.2	-7.8	6.8	195	55.4	-9.7
Singapore	4.1	Q3	4.6	3.5	6.7	Oct	6.1	2.0	Q3	18.9	-1.0	2.9	131	1.36	0.5
South Korea	3.1	Q3	1.3	2.6	5.0	Nov	5.2	2.3	Nov§	1.0	-3.2	3.4	122	1,303	-9.4
Taiwan	4.0	Q3	7.5	3.0	2.3	Nov	2.9	3.6	Oct	12.4	-1.4	1.3	67	30.7	-9.7
Thailand	4.5	Q3	5.0	3.2	5.5	Nov	6.1	1.2	Sep§	-1.2	-5.0	2.4	40	34.8	-4.3
Argentina	5.9	Q2	6.8	5.6	92.4	Nov	72.8	6.9	Q2§	-0.5	-4.2	na	na	174	-41.3
Brazil	3.6	Q3	1.6	2.7	5.9	Nov	9.3	8.3	Oct§‡‡	-2.4	-5.6	13.5	280	5.30	7.0
Chile	0.3	Q3	-4.6	2.3	13.3	Nov	11.6	8.0	Oct§‡‡	-8.1	-0.3	5.3	-54	891	-5.4
Colombia	7.1	Q3	6.4	7.9	12.5	Nov	10.1	9.7	Oct§	-5.6	-4.7	12.8	480	4,786	-16.6
Mexico	4.3	Q3	3.6	2.7	7.8	Nov	7.9	3.2	Oct	-1.0	-2.5	8.8	142	19.8	4.7
Peru	1.7	Q3	1.8	2.7	8.4	Nov	7.8	6.0	Oct§	-3.6	-1.5	8.0	207	3.84	5.3
Egypt	3.3	Q2	na	6.6	18.8	Nov	13.6	7.4	Q3§	-4.6	-7.4	18.1	324	24.7	-36.3
Israel	7.6	Q3	2.1	5.9	5.1	Oct	4.5	4.1	Oct	2.9	0.3	3.3	230	3.46	-9.6
Saudi Arabia	3.2	2021	na	8.9	2.9	Nov	2.5	5.8	Q2	13.5	3.5	na	na	3.76	-0.2
South Africa	4.1	Q3	6.6	1.9	7.8	Oct	6.9	32.9	Q3§	-1.3	-5.5	10.2	77	17.3	-8.6

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

Markets

In local currency	Index Dec 19th	% change on: one week	Dec 31st 2021
United States S&P 500	3,817.7	-4.3	-19.9
United States NAScomp	10,546.0	-5.4	-32.6
China Shanghai Comp	3,107.1	-2.3	-14.6
China Shenzhen Comp	2,003.2	-2.8	-20.8
Japan Nikkei 225	27,237.6	-2.2	-5.4
Japan Topix	1,935.4	-1.1	-2.9
Britain FTSE 100	7,361.3	-1.1	-0.3
Canada S&P TSX	19,200.8	-4.1	-9.5
Euro area EURO STOXX 50	3,811.2	-2.8	-11.3
France CAC 40	6,473.3	-2.7	-9.5
Germany DAX*	13,942.9	-2.5	-12.2
Italy FTSE/MIB	23,683.5	-2.6	-13.4
Netherlands AEX	700.7	-2.8	-12.2
Spain IBEX 35	8,136.8	-1.5	-6.6
Poland WIG	56,118.2	-0.7	-19.0
Russia RTS, $ terms	991.4	-9.0	-37.9
Switzerland SMI	10,773.2	-2.4	-16.3
Turkey BIST	5,391.9	3.8	190.3
Australia All Ord.	7,321.0	-0.7	-5.9
Hong Kong Hang Seng	19,352.8	-0.6	-17.3
India BSE	61,806.2	-0.5	6.1
Indonesia IDX	6,779.7	0.7	3.0
Malaysia KLSE	1,477.1	0.2	-5.8

	index Dec 19th	% change on: one week	Dec 31st 2021
Pakistan KSE	40,970.8	-1.4	-8.1
Singapore STI	3,256.6	0.5	4.3
South Korea KOSPI	2,352.2	-0.9	-21.0
Taiwan TWI	14,433.3	-1.2	-20.8
Thailand SET	1,618.2	-0.3	-2.4
Argentina MERV	168,965.8	1.5	102.4
Brazil BVSP	104,739.8	-0.6	-0.1
Mexico IPC	49,946.1	-1.0	-6.2
Egypt EGX 30	14,738.6	0.1	23.8
Israel TA-125	1,826.1	-1.3	-11.9
Saudi Arabia Tadawul	10,186.2	1.5	-10.1
South Africa JSE AS	73,359.6	-1.4	-0.5
World, dev'd MSCI	2,585.9	-3.6	-20.0
Emerging markets MSCI	957.6	-0.6	-22.3

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 31st 2021
Investment grade	151	120
High-yield	479	332

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

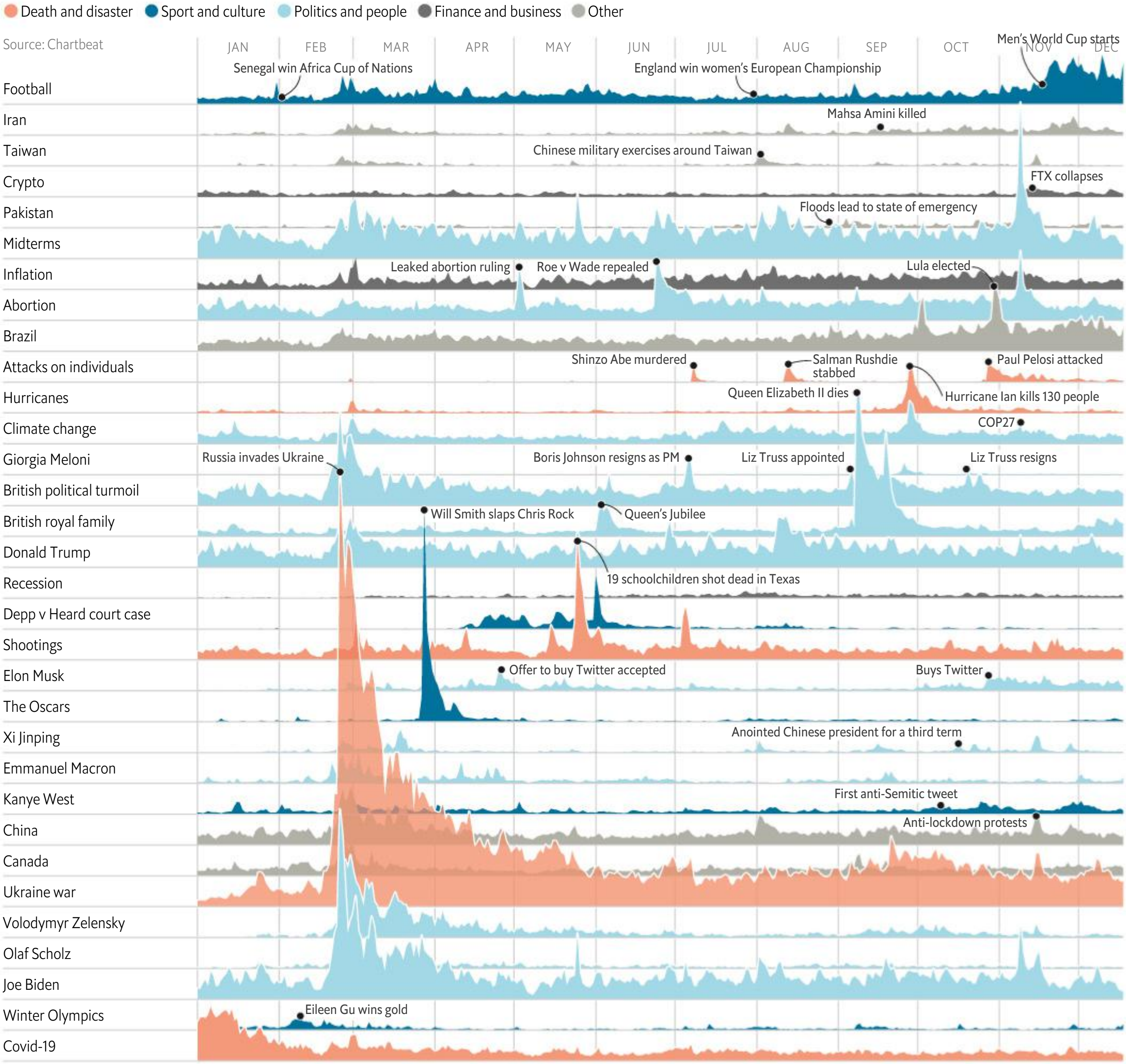
The Economist **commodity-price index**

2015=100	Dec 13th	Dec 16th*	% change on: month	year
Dollar Index				
All Items	151.3	152.2	4.6	-5.7
Food	136.2	137.8	0.8	0.3
Industrials				
All	165.5	165.6	7.8	-10.0
Non-food agriculturals	132.4	131.5	-4.5	-15.8
Metals	175.3	175.7	11.0	-8.5
Sterling Index				
All items	186.3	191.1	2.3	2.7
Euro Index				
All items	157.7	159.0	1.3	nil
Gold				
$ per oz	1,813.5	1,789.8	2.6	0.2
Brent				
$ per barrel	80.6	79.2	-10.6	6.9

Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

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→ **Daily hours of readership in 2022**



The year of Ukraine

War replaces disease as the world's most newsworthy subject

JUST AS IN 2020 and 2021, during the past year a single story has dominated news coverage. Rather than covid-19, however, in 2022 readers have focused on Russia's invasion of Ukraine.

These rankings come from a dataset of 6.5m stories on 32 newsy topics compiled by Chartbeat, an analytics firm. Of the 1bn hours audiences spent reading them, the war accounted for 278m in total—a similar share to covid's in 2021—and 6.4m on the day the invasion began. That exceeds the combined first-day tallies for the death of Britain's Queen Elizabeth II and Will Smith slapping Chris Rock at the Oscars. Readership fell slowly until May, and has averaged 550,000 hours a day since then. That is just above the daily rate for the men's football World Cup recently won by Argentina.

Various American political topics also ranked highly, though this may reflect the concentration of Chartbeat's clients in English-speaking markets. The midterm elections racked up 145m hours and Joe Biden 137m. Strikingly, Donald Trump, now just a former president, still amassed 100m—matching the combined total for stories about politics in Britain, which ran through three prime ministers in 50 days.

As for the previous year's leading subject, pandemic fatigue among audiences set in just as the war in Ukraine began. In early January the then-novel Omicron variant was the biggest story, peaking at 800,000 hours of readers' time on January 6th. Since then, however, interest has waned, even though the death toll attributable to covid in 2022 is probably similar to that of 2020. Only when protests erupted in November against the Chinese government's strict lockdowns did the pandemic briefly recapture readers' attention. ■



The endless quest

Daniel Brush, goldsmith and unrelenting seeker after beauty, died on November 26th, aged 75

In September 2017 a group of young women from a jewellery school came to Daniel Brush's studio-cum-home, a loft in mid-Manhattan. They crammed onto his sofas, awed to be meeting a figure who, to them, was a worker of miracles with gold, steel and jewels: an artist unknown to all but a few *cognoscenti,* who considered him one of best there was.

He, facing them, could hardly stand still for nerves. He leaned against the wall as if he hoped it would swallow him. His words jerked, and sometimes burst out in anger. Deliberately, he still wore his surgical binoculars and 40-power loupe clamped over his eyes and his leather apron round his waist. He had broken off his work to talk to them, he was touched to see them, but he must get back to it. He had to get back.

For 45 years in that loft, living like a hermit, he had pursued his calling. Almost no one knew he was there or what he was doing. His wife Olivia was the only company he needed; his work was her work. Together they set a rhythm to each day, and over 40 years it did not change. Every breakfast, Cheerios; every lunch, lentil soup. He rose very early and then, for three or four hours, swept the loft to empty his mind, as an apprentice initiate might sweep a temple. Pacing, reading and meditating, especially on Zen texts or ancient technical manuals, were necessary to the work. So was worrying. Did he have anything to say? Did he know enough?

If he thought he did, he would be in the studio by 11, and might work for 18 hours straight. He went in like a boxer, expecting a fight. His thoughts and the material grappled together as long as his momentum lasted; he downed tools as soon as it lapsed. A piece might dwell in the studio for decades before he addressed it again. He did not grasp or use the word "complete", for the work was never-ending.

He produced hundreds of objects: boxes, brooches, collars, perfume flasks, *objets de vertu* of all sorts, most of them exquisite and many astonishingly small. He once made 117 collars, over three years, simply to have them photographed as a "visual poem" in a book. It was still time well spent. Every piece advanced his understanding of the materials he was using.

Those materials included marble, aluminium and even Bakelite, sometimes presented to him by fans who simply wondered what he might make of them. When one of his devotees presented him with a packet of tiny pink diamonds from Australia, he whimsically decorated the Bakelite with sparkling flamingos and rabbits; but he refused to be called a jeweller. Jewellers traditionally waxed, cast and filed; he wrought and struggled. Working with steel, for example, was almost brutal: hammering, forging, chiselling, resharpening for every cut, like forcing an ice-breaker through Antarctica.

Each piece was hand-made there in the studio. He worked alone, too impatient to do otherwise, and never finding anyone else who wanted to do what he wanted to do. Rather than use electricity, he laboured in a forest of antique machines, including the largest private collection of lathes in the world. On these he turned minutely patterned boxes made of mastodon ivory 40m years old, or engraved thousands of rainbow-reflecting lines on flattened billets of steel. When tools frustrated him he made his own, displaying them in cabinets as art in themselves. He painted, too, applying the same technique—learned from Japanese Noh theatre—as he did to the objects he sculpted or turned. Using his grandfather's ruling-pen, containing one drop of ink, he would approach the paper, inhale, and make one line; then exhale, step back, and repeat until the momentum stopped.

Above all else, he worked in gold. He did so first in 1967, when he bought an ounce of it to make Olivia's wedding ring. Yet his obsession had taken fire long before, on a trip to London, when at 13 he had seen an Etruscan gold bowl in the Victoria and Albert Museum. The ancient technique of granulation, applying geometries of gold beads as fine as sand-grains to a curved gold surface without solder, was stunning, but so was the lightness of spirit, the insouciance of the thing.

He resolved then and there that he would make such a bowl, and gold became the study of his life. Simply to watch it melt, turn to red-hot and white-hot, then glow purple, was magical. To hold pure gold grain and let it sift through his fingers restored his equanimity of spirit. To outside eyes his own granulation, with 78,000 hand-made grains applied to one dome five inches in diameter, was peerless. He thought he was still rubbish at it.

What was this search? What was his work for? Certainly not for fame. And not for money, either. He refused to take commissions, though his pieces could command six-figure sums, because neither he nor Olivia could bear to let them go. They crowded his studio as the record of his life, and of passing time. His dreams and blood were in them. They could be bought only by those who had the sensitivity to appreciate what they were. That connection of ideas, as the piece passed from warm hand to warm hand, was where their only value lay.

His chief motivation, he said, was to understand both the material and, through that, himself. He wanted to know why his heart had beat so fast in the V&A that day. Gold in particular had a message for him. His manipulation of this glorious metal, like his daily sweeping of the loft, might empty his mind to hear it. He longed for that clarity.

It would come, he believed, if he took ego out of the process; if he became a vessel the pieces just flowed through. His work could then be precious to others not in a monetary way, but as a link to something greater and a source of calm. He had long admired the Tendai monks of Japan, who made gruelling treks through the mountains to find enlightenment. He loved the idea that such a monk might take a Brush piece out of a pocket, let its beauty pass from emptied mind to emptied mind, and smile. That too was what its maker was after. ■

Commit to growth in 2023

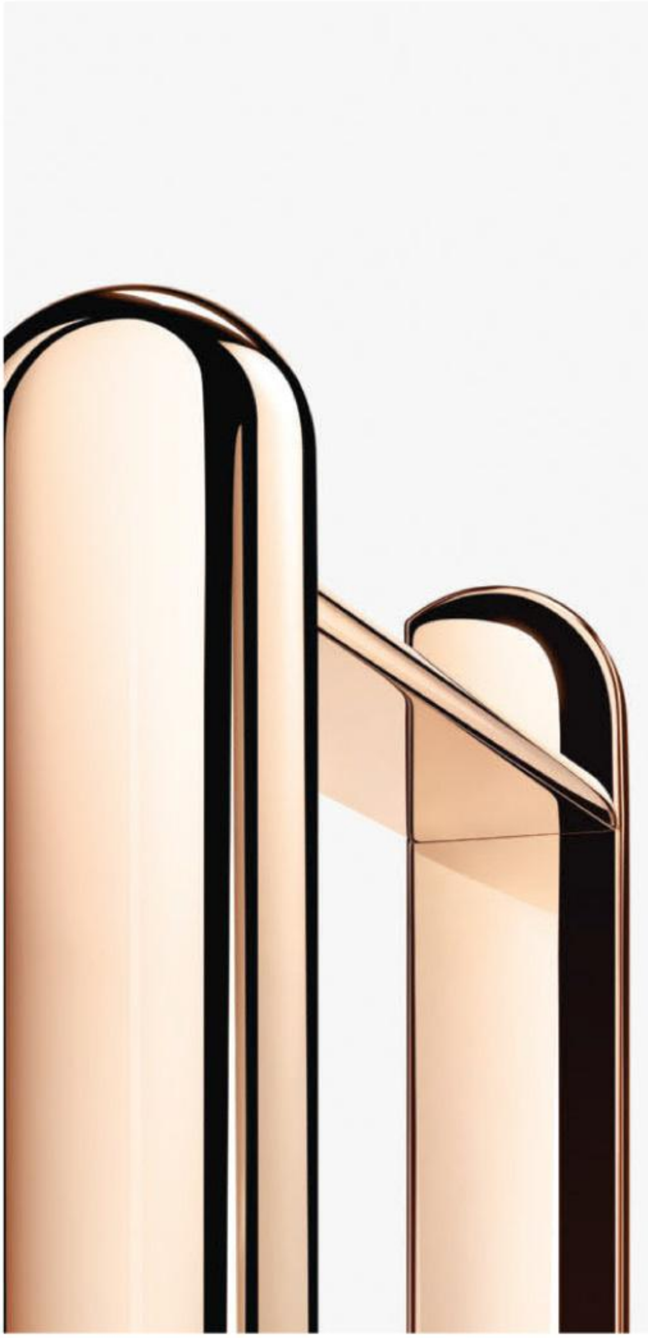
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